

HP ProLiant Essentials Rapid Deployment Pack User Guide

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HP ProLiant Essentials Rapid Deployment Pack User Guide

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About This Guide

This user guide provides details for implementing and using the HP ProLiant Essentials Rapid Deployment Pack.

Where to Go for Additional Help

For additional information on the topics covered in this guide, refer to the following documentation:

- For additional information about the Rapid Deployment Pack:
 - *HP ProLiant Essentials Rapid Deployment Pack Planning and Implementation Guide*
 - *HP ProLiant Essentials Rapid Deployment Pack Support Matrix*

More information can be found at <http://www.hp.com/servers/rdp>.

- For information about the SmartStart Scripting Toolkit:
 - *SmartStart Scripting Toolkit User Guide*
 - *SmartStart Scripting Toolkit Best Practices*
 - *SmartStart Scripting Toolkit Overview* white paper
 - *SmartStart Scripting Toolkit Server Deployment Guide: Windows 2000 Network Deployment* white paper

More information can be found at <http://www.hp.com/servers/sstoolkit>.

- For information about the Remote Insight Lights-Out Edition (RILOE) and Integrated Lights-Out (iLO):

- *Remote Insight Lights-Out Edition User Guide*
- *HP Integrated Lights-Out User Guide*

More information can be found at <http://www.hp.com/servers/lights-out>.

- For information about Altiris software:

- *Altiris Deployment Solution 5.6 Product Guide*

More information can be found on the Altiris website at <http://www.altiris.com>.

- For information about the ProLiant Support Pack:
 - *ProLiant Support Pack and Deployment Utilities User Guide*More information can be found at <http://www.hp.com/servers/smartstart>.
- For information about HP StorageWorks storage area networks
 - *HP Heterogeneous Open SAN Design Reference Guide*More information can be found at <http://www.compaq.com/products/storageworks/san/documentation.html>.
- For information about ProLiant Packaged Clusters:
 - *HP ProLiant DL380 G3 Packaged Cluster Using Microsoft Environment*
 - *HP ProLiant DL380 Packaged Cluster Using Microsoft Windows Server 2003 Installation Checklist*
 - *HP ProLiant DL380 Packaged Cluster Using Microsoft Windows 2000 Server Installation Checklist*More information can be found at <http://www.hp.com/servers/proliant/highavailability>.
- New and updated server support software and drivers can be found at <http://www.hp.com/support/files>.

Getting Help

If you have a problem and have exhausted the information in this guide, you can get further information and other help in the following locations.

Technical Support

In North America, call the Technical Support Phone Center at 1-800-652-6672. Telephone support is available 24 hours a day, 7 days a week. For continuous quality improvement, calls may be recorded or monitored.

Outside North America, call the nearest Technical Support Phone Center. Telephone numbers for worldwide Technical Support Centers are listed at <http://www.hp.com>.

Be sure to have the following information available before you call Technical Support:

- Technical support registration number (if applicable)
- Product-specific information, such as the serial number and software version number
- Applicable error messages
- Name and revision level of third-party software
- Licensing information, including the license expiration date, if applicable, nodes, and software maintenance end date

- A detailed explanation of your issue including:
 - The type of job you were running (for example, a hardware configuration, a scripted install, or an imaged install)
 - At what point the job failed
 - What was successfully accomplished prior to the failure
- Deployment Server specifications, such as how many, what type (SQL or PXE servers), configuration information, server model and hardware information, operating system, and revision level
- Target server specifications, such as how many, server model and hardware information, operating system being deployed, and revision level
- A description of your network environment

Website

Information on this product, as well as the latest drivers and flash ROM images are available at <http://www.hp.com>.

Telephone Numbers

For the name of your nearest HP authorized reseller:

- In the United States, call 1-800-345-1518.
- In Canada, call 1-800-263-5868.

For HP technical support:

- In the United States and Canada, call 1-800-652-6672.
- Outside the United States and Canada, refer to <http://www.hp.com>.

Introduction

Overview

This guide provides instructions for installing and using the Rapid Deployment Pack and how to deploy ProLiant servers using the integrated tools, scripts, and deployment jobs. This guide also provides instructions for customizing the Rapid Deployment Pack to fit your own needs.

The *HP ProLiant Essentials Rapid Deployment Pack Planning and Implementation Guide* provides information about how to best use the Rapid Deployment Pack as your server deployment solution. Review this document before you begin deploying servers to help you determine how to set up your deployment infrastructure most effectively.

For additional information about the Altiris eXpress Deployment Solution, refer to the *Altiris Deployment Solution 5.6 Product Guide*.

Deployment Steps

Three fundamental steps are involved in deploying ProLiant servers.

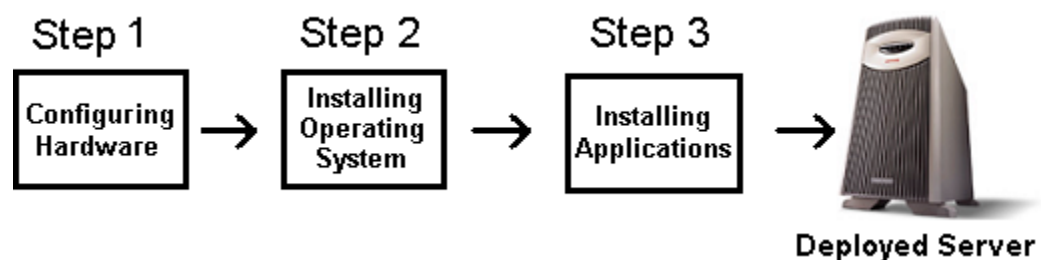


Figure 1-1: Server deployment

Step 1—Configuring Hardware

Before any operating system or application software can be installed on the server, you must configure the hardware. The Rapid Deployment Pack provides the tools and scripts to automate the server hardware configuration by using the SmartStart Scripting Toolkit.

Step 2—Installing the Operating System

After the hardware is configured, you can install the operating system on the server using either of the following methods:

- Operating system scripted installation
- Hard drive imaging

Step 3—Installing Applications

After the operating system installation is complete, you can install additional applications on the server using either of the following methods:

- Scripted installation
- Imaged installation (included in the operating system image, not suitable for all applications)

Deployment Methods

The Rapid Deployment Pack enables the use of scripting or imaging deployment methods, or a combination of both, to deploy ProLiant servers. It is important to consider the advantages and disadvantages of each of these methods. This section provides an overview of the deployment process and the capabilities of each deployment method.

Scripting

Scripting is the use of batch files, utilities, and configuration files to execute a sequence of commands without user interaction. The deployment scripts include hardware configuration and operating system installation and can include application installation and software configuration.

The benefit of scripting is that it allows flexibility. The same script can be used on many different server models without making any changes, so there are fewer scripts to maintain. The challenge of scripting is that the scripts can be complicated and time-consuming to develop, and scripting can be significantly slower than imaging.

In every initial ProLiant server deployment, scripting is required to configure the BIOS and the array controller (if installed) through the SmartStart Scripting Toolkit. Redeployment of a server does not require this step if the hardware configuration is not changed.

The method used for scripted installation of the operating system is specific to the operating system vendor. Microsoft Windows products support scripted installation through the use of the unattend.txt file. Linux distributions support scripted installations through the Kickstart process for Red Hat Linux and the Auto YaST process for UnitedLinux.

Imaging

Imaging, or disk cloning, is a way to deploy servers, operating systems, and applications by taking a snapshot of the hard drive, a portion of the hard drive, or a set of files. The snapshot is used to quickly replicate the exact configuration onto another machine.

The benefit of imaging is speed. For example, deployment of Windows 2000 using an image can be completed in approximately 7 to 10 minutes, while a scripted installation can take up to an hour. Imaging enables the creation of duplicates of a server, ensuring conformity to specifications. The Altiris tools allow personalization of every image as it is deployed so that each server has a unique server name, network settings, user accounts, and so on.

The challenge of imaging is in its lack of flexibility. Imaging requires that an image be created for each hardware configuration, and some applications cannot be replicated using imaging.

The Altiris eXpress Deployment Solution contains an integrated imaging tool. For more information about the tools provided with the Altiris product suite, refer to the *Altiris Deployment Solution 5.6 Product Guide*.

Scripting-Imaging Hybrid

While scripting is necessary to initially configure the server hardware, most users adopt a hybrid approach for the remainder of the configuration process, using a combination of imaging and scripting to complete the server configuration.

It is possible for deployment jobs to contain both scripting and imaging tasks. For example, one job can script the hardware configuration, perform a reboot, image a complete disk partition, then use scripting to install applications. This fast and flexible job can be dragged and dropped onto a new server.

Altiris eXpress Deployment Server Console Enhancements for ProLiant Servers

This section describes enhancements made to the Altiris eXpress Deployment Server Console specifically for ProLiant servers. For additional information about Deployment Server Console enhancements, refer to the *Altiris Deployment Solution 5.6 Product Guide*.

Grouping of Blade Servers by Physical Location

ProLiant BL servers contain features describing the physical location of a server blade within a rack and enclosure. When the administrator names the rack and enclosure, the enclosure automatically assigns a bay number to the blade as it is inserted into the enclosure. The Deployment Server reads these settings from each blade as the blade connects to the Deployment Server and enables these servers to be viewed in a physical tree view according to their Rack\Enclosure\Bay (R\E\B) settings.

The Physical Devices view is disabled by default. This view option is only available if the Deployment Server database contains R\E\B information for any computer. When Physical Devices view is enabled, a new root node named Physical Devices displays in the **Computer** pane within the Deployment Server Console.

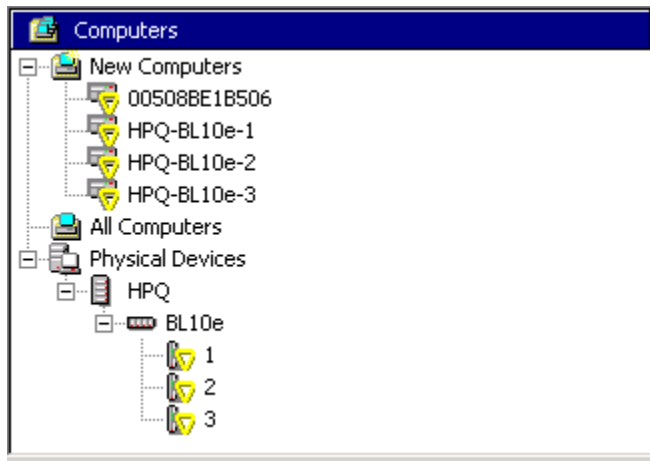







Figure 1-2: Physical Devices view

The following table lists the server icons that are used in the Physical Devices view in the Deployment Server Console.

Table 1-1: Server Icons

Icon	Description
	Indicates a grouping of physical devices
	Indicates a rack
	Indicates an enclosure
	Indicates a single blade in a bay
	Indicates that an unconfigured blade is in a waiting state designated by the user

To view physical location information for ProLiant BL servers from the **Bay Properties** page, right-click the server, select **Properties**, and then **Bay**. You can then set the rules for automatic redeployment of ProLiant BL servers, based on physical location changes. For more information, refer to the “Change Rule Deployment for Blade Servers” section in this chapter.

IMPORTANT: For details about setting up the ProLiant BL e-Class server enclosure and rack information, refer to the *Integrated Administrator User Guide*. For details about setting up the ProLiant BL p-Class server enclosure and rack information, refer to the *Integrated Lights-Out User Guide*.

Change Rule Deployment for Blade Servers

Further optimization for the ProLiant BL servers includes rule-based deployment based on detection of changes in physical locations. This feature enables rapid serviceability when replacing a failed server blade, a procedure called “Rip-and-Replace.”

The Deployment Server keeps track of the physical location of every ProLiant BL server and can detect when a new server has been placed in a particular bay. The Change Rules feature can be configured so that when the Deployment Server detects a new server placed into a previously occupied bay, one of several different deployment actions can occur.

These deployment rules are configured from the **Bay Properties** page.

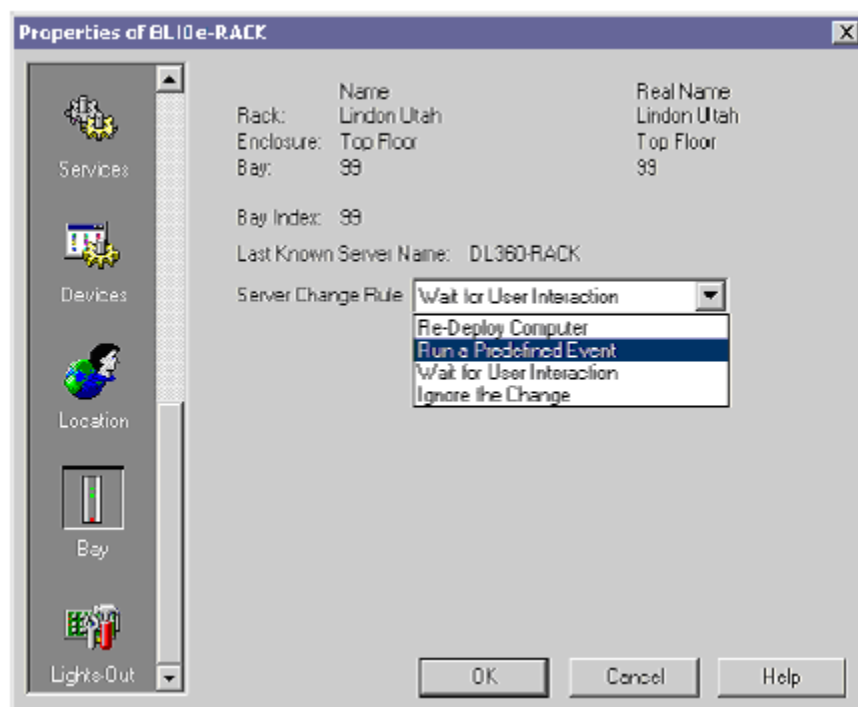


Figure 1-3: Bay Properties page

The following rules can be configured at the **Bay Properties** page:

- **Re-Deploy Computer**—This rule takes the previous server configuration history and replays it on the new server. All tasks and jobs in the server history replay starting from the most recent image or scripted installation job.
- **Run a Predefined Job**—The server processes any job specified by the user, including the Initial Deployment job.
- **Wait for User Interaction**—No job or task is performed. The Deployment Agent on the server is instructed to wait, and the icon on the Deployment Server Console is changed to reflect a waiting server.
- **Ignore the Change**—The new server is ignored, meaning that no jobs are initiated. If the server existed in a previous bay, the history and parameters for the server are moved or associated with the new bay. If the server is a new one (never before seen), its properties are associated with the bay, and the normal process defined for new servers, if any, is followed.

Integration with Lights-Out Management

Lights-Out Management enables the management of remote servers and the performance of remote console operations regardless of the state of the operating system or hardware.

The Deployment Server provides plug-ins, connectivity, and access to the power management features of Integrated Lights-Out (iLO) and Remote Insight Lights-Out Edition (RILOE) to power on, power off, or cycle power on the target computer. Each time a computer connects to the Deployment Server, the server polls the computer to see if iLO or RILOE is installed, and if either is installed, the server gathers information, including the DNS name, IP address, and first user name. Security is maintained by requiring the user to enter the correct password for that user name.

The Deployment Server enables the user to display the stored information for each computer by right-clicking the server, selecting **Properties**, then clicking the **Lights-Out** icon.

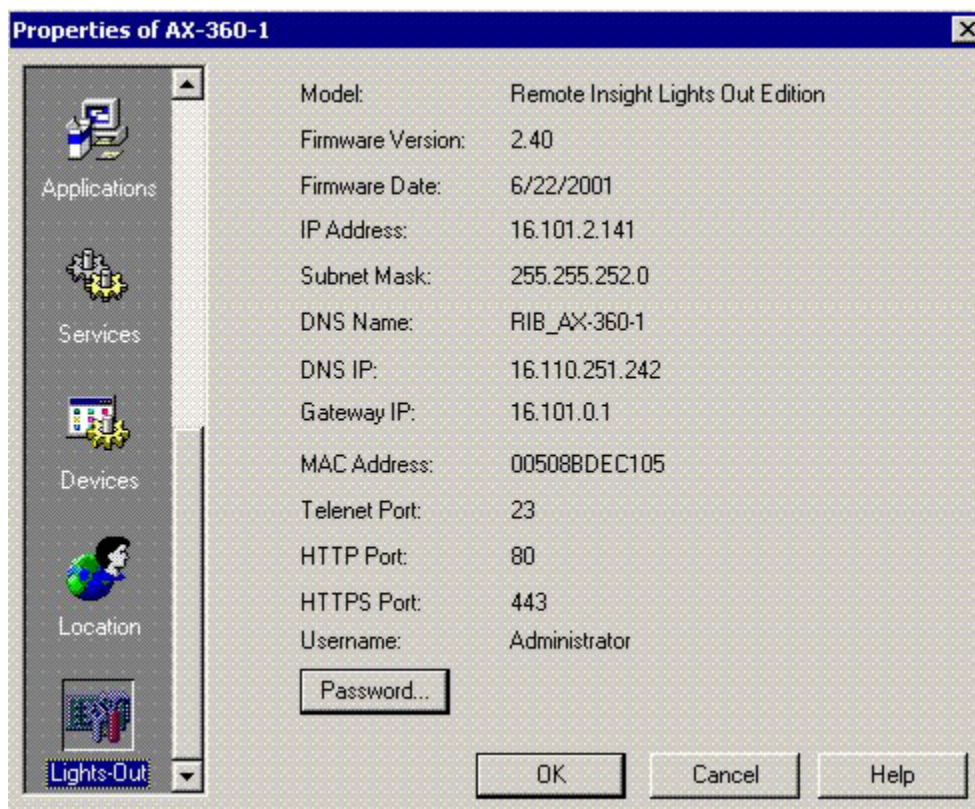


Figure 1-4: RILOE properties

The iLO or RILOE interface can be accessed from the Deployment Server Console by right-clicking the server and selecting **Power Control**, then **RILOE-Interface**. This provides easy access to the iLO and RILOE features such as remote console.

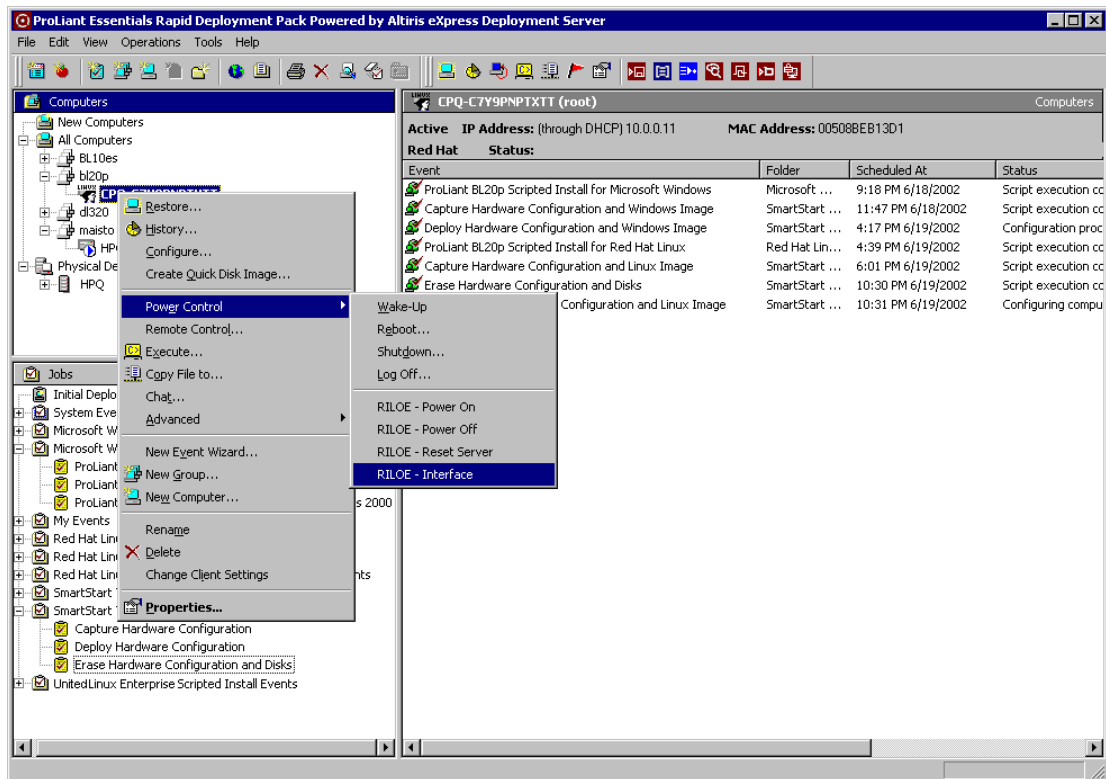


Figure 1-5: iLO/RILOE interface

Enhanced Tools Menu

The Altiris eXpress Deployment Solution provides an extensible Tools menu, meaning that new menu items or menu groups can be added after installation. The Rapid Deployment Pack enhances the Deployment Server Console Tools menu to provide easy access to documentation or extra tools that can be delivered with the pack. This feature also enables you to extend the menu to include documents or applications that you use regularly and want to easily access.

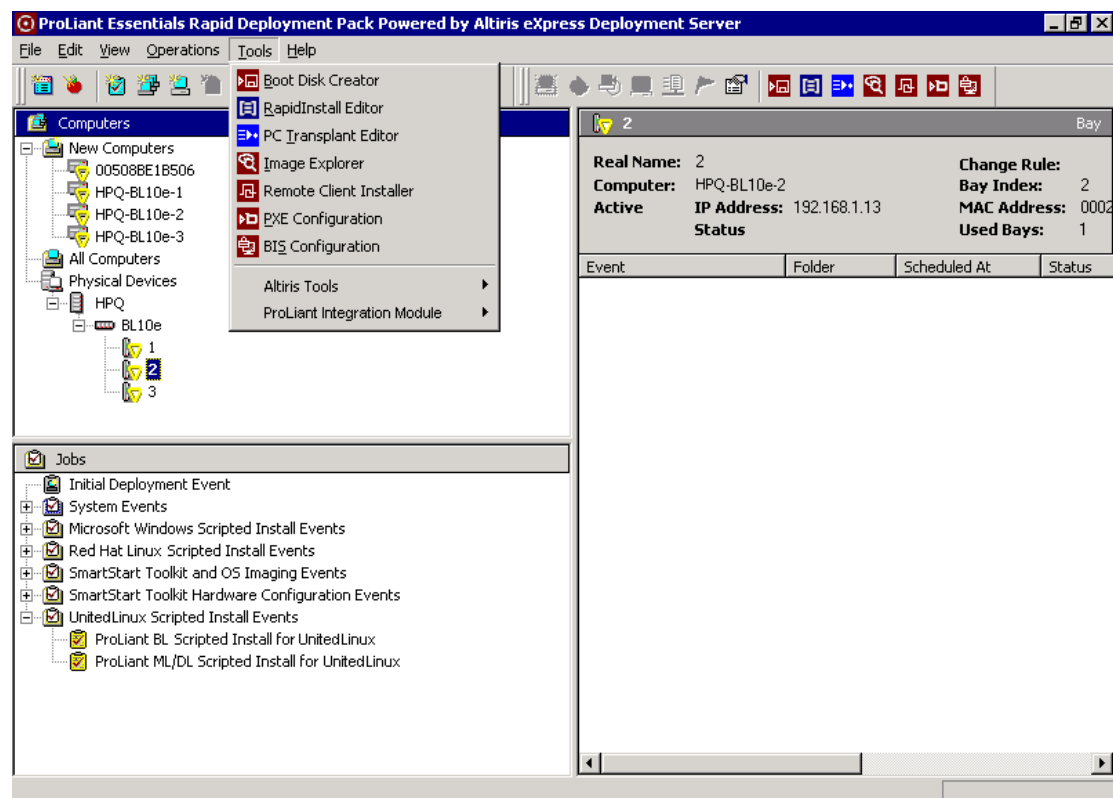


Figure 1-6: Tools menu

Software Installation

Overview

This chapter describes the process of setting up the deployment infrastructure for the first time, as well as upgrading the Deployment Server and Linux NFS server with new versions of software.

The *HP ProLiant Essentials Rapid Deployment Pack Planning and Implementation Guide* provides information about how to best use the Rapid Deployment Pack as a server deployment solution. Review this document before beginning the software installation.

Licensing

A license allows a server to be deployed and managed from the Altiris eXpress Deployment Solution. One license is required for each server managed from the Deployment Server Console. A license file contains licenses for a predetermined number of servers.

Licenses are independent of the version of the Rapid Deployment Pack, and they do not expire. After a license is applied to a specific server, the license cannot be removed or transferred to another server.

Licensing Options

The Rapid Deployment Pack offers four licensing options:

- **One-user license**—Use this license to deploy and manage deployment of one server through the Deployment Server.
- **10-user license**—Use this license to enable deployment and manage deployment of 10 servers through the Deployment Server.
- **Flexible license**—Flexible Quantity License kits are ways to obtain an exact quantity of licenses in the purchase of a single software option kit.
- **Master License Agreement**—This option provides the customer with the ability to order a key for the quantity desired and for a specific time, and then purchase a license (a material-less SKU) for each node deployed over time.

For more information about Flexible and Master licensing options, refer to the ProLiant Essentials Licensing Options at <http://www.hp.com/servers/rdp>.

If You Are Evaluating the Product

There are two types of evaluation licenses that you can use:

- A 10-node, 7-day evaluation license is built into the Altiris eXpress Deployment Solution. During installation at the **Deployment Server Client Access Point Information** screen, select the **Free 7 day license or maintenance upgrade** option to activate the license.
- To obtain and use a 10-node, 30-day evaluation license:
 - a. Access <http://www.hp.com/servers/rdp/eval>.
 - b. Follow the on-line instructions, and an evaluation license file will be e-mailed to you.
 - c. During installation at the **Deployment Server Client Access Point Information** screen, enter the path to the license file in the **License file** field.

If You Have Purchased the Product

To register your product and obtain your license file:

1. Locate the unique 20-character product registration number located on the label **on the back** of the software packaging box. The registration number is in the form:

xxxxxx-xxxxxx-xxxxxx-xxxxxx

IMPORTANT: Keep your product registration number for future reference.

2. Access <http://www.hp.com/servers/rdp/register>.
3. Follow the on-line instructions to complete the registration process, and a license file will be e-mailed to you.
4. During installation at the **Deployment Server Client Access Point Information** screen, enter the path to the license file in the **License file** field.

If You Are Purchasing Additional Licenses for an Existing Installation

To register your product and obtain your license file:

1. Locate the unique 20-character product registration number located on the label **on the back** of the software-packaging box. The registration number is in the form:

xxxxxx-xxxxxx-xxxxxx-xxxxxx

2. Access www.hp.com/servers/rdp/register.
3. Follow the on-screen instructions to complete the registration process, and a license file will be e-mailed to you.
4. Run the Altiris **Product Licensing Utility** in the **Start Menu>Programs>Altiris>Altiris eXpress>Deployment Server** menu.
5. Enter the path to the license file in the **Activation Key File Information** field, then click **Next**.
6. Follow the on-line directions to apply your additional licenses.

If You Are Upgrading an Existing Installation

During installation at the **Deployment Server Client Access Point Information** screen, select the **Free 7 day license or maintenance upgrade** option to continue using your existing licenses.

First-Time Installation

This section describes the requirements that must be met and the procedures to install the Rapid Deployment Pack for the first time.

Network Infrastructure Requirements

If PXE is used to perform remote deployment of servers, DHCP must be available on the network.

IMPORTANT: A DHCP server must be running **before** the Altiris eXpress Deployment Solution installation to ensure correct installation of PXE services.

System Requirements

The following system requirements must be met for the deployment server, Linux NFS server (required for Linux scripted installs), and target servers before installing the Rapid Deployment Pack.

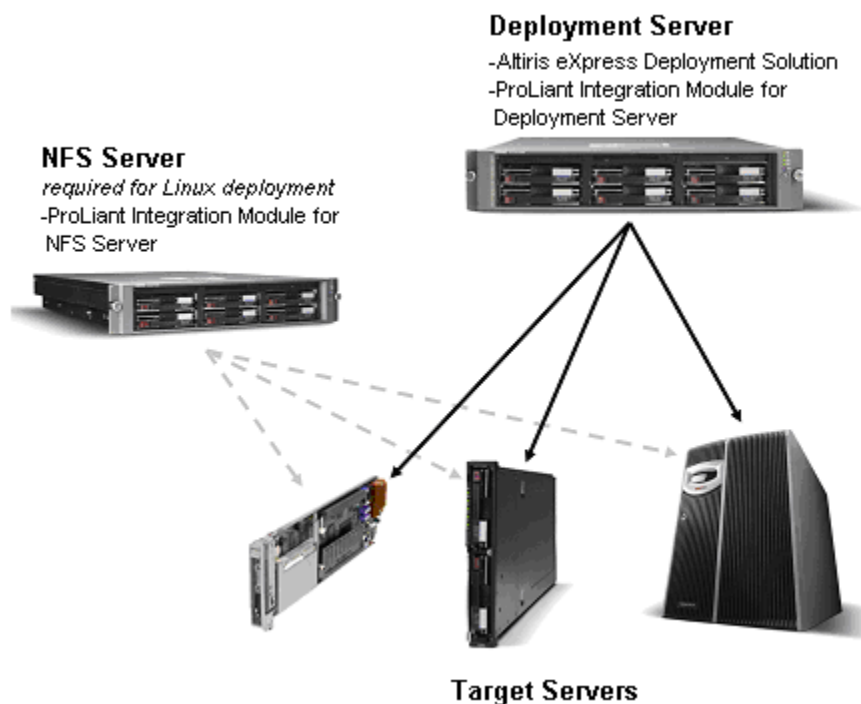


Figure 2-1: Basic deployment infrastructure

Deployment Server

Be sure that the deployment server meets the following system requirements:

- Intel® Pentium® III or higher processor
- 256 MB RAM
- CD-ROM drive
- Network connection, configured with a static IP address
- Microsoft Windows 2000 Server; Windows 2000 Advanced Server; Windows Server 2003, Standard Edition; or Windows Server 2003, Enterprise Edition
- 1.5 GB of available disk space, plus additional space to store any captured disk images, additional operating systems, or application installation files

For more details about requirements for the deployment server, refer to the *Altiris Deployment Solution 5.6 Product Guide*.

Linux NFS Server

IMPORTANT: To install Linux on target servers using a scripted installation, a Linux NFS server must be running. Linux NFS server installation instructions are provided in the “Linux NFS Server Installation” section in this chapter.

Be sure that the Linux NFS server meets the following system requirements:

- CD-ROM drive
- Network connection, configured with a static IP address, with DNS available on the network
- Red Hat Linux 7.2, Red Hat Linux 7.3, Red Hat Linux 8.0 Professional, Red Hat Enterprise Linux AS 2.1 Update 2 or earlier, Red Hat Enterprise Linux ES 2.1 Update 2, or UnitedLinux 1.0
- 1.9 GB of available disk space on the /usr directory for each distribution that is installed from the Linux NFS server
- NFS software installed and configured (if a firewall is installed on the server, the configuration must allow NFS connections)

Target Servers

The Rapid Deployment Pack supports ProLiant BL server and ProLiant ML/DL servers. For details on target server requirements, refer to the *HP ProLiant Essentials Rapid Deployment Pack Support Matrix*.

Deployment Server Installation

The following sections describe how to install the Rapid Deployment Pack software on the deployment server.

Installation Requirements

Before beginning the Rapid Deployment Pack software installation, be sure that the following items are available:

- Rapid Deployment Pack CD
- Windows 9x boot diskette or CD (required for creating PXE images and boot diskettes)
- Windows 2000 and/or Windows Server 2003 operating system CDs
- Red Hat Enterprise Linux distribution CD #1 (required for populating boot kernel and initrd files if Red Hat Enterprise Linux AS 2.1 or Red Hat Enterprise Linux ES 2.1 jobs are selected)
- License file (optional—refer to the “Licensing” section in this chapter)

Starting the Installation

To install software from the Rapid Deployment Pack CD to the deployment server:

1. Insert the Rapid Deployment Pack CD into the intended deployment server.
2. Read the license agreement displayed by the autorun. If you agree to the terms of the license agreement, click **Agree** to continue.



Figure 2-2: Rapid Deployment Pack license agreement

3. Review the pre-installation steps before installing the Rapid Deployment Pack software.

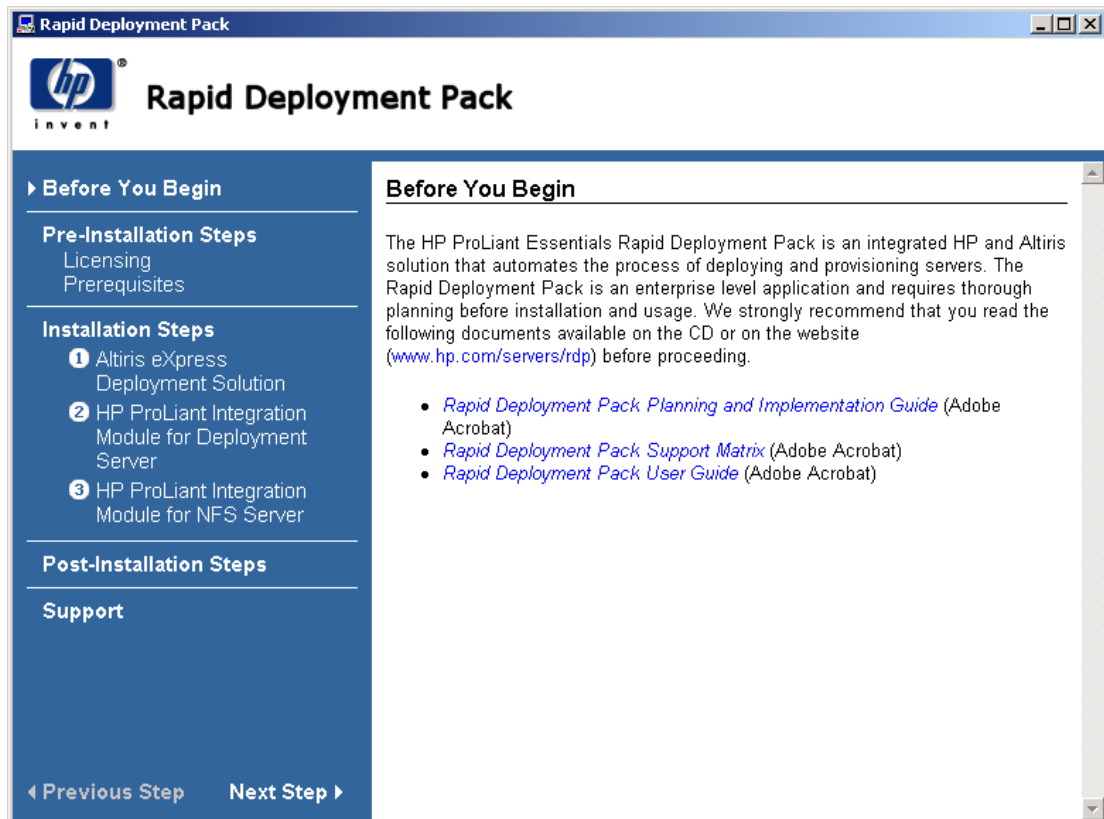


Figure 2-3: Autorun menu

Several components must be installed to complete the Rapid Deployment Pack installation. Refer to the following sections to install the components.

Altiris eXpress Deployment Solution Installation

To install the Altiris eXpress Deployment Solution:

1. Click **(1) Altiris eXpress Deployment Solution** from the left pane of the autorun menu, then click **Altiris eXpress Deployment Solution X.XX**, where X.XX is the version of the software.



Figure 2-4: Altiris eXpress Deployment Solution installation

2. Select **Simple Install** or **Custom Install** at the next screen.

The simple install method is recommended for first-time installations. This configuration method places the Altiris eXpress Deployment Server Console, SQL Database, File Server, and PXE server on the same machine.

The custom install method enables you to select if and where to install each piece of the Deployment Solution.

Table 2-1: Selecting an Installation Method

Use the simple install method when:	Use the custom install method when:
You do not have an available SQL server and want Microsoft Database Engine (MSDE) installed for you on the Deployment Server.	You already have SQL server or MSDE installed on the intended Deployment Server, or you want to use an existing SQL server somewhere else in the network.
You want PXE server installed on the Deployment Server, or you do not want PXE server installed at all.	You want PXE server installed on another computer.
You want the Client Access Point (File Share) on the Deployment Server.	You want to install the Client Access Point (File Share) on another computer.

While the simple install has very few screens for user input, the custom install has essentially one screen for each component of the Altiris eXpress Deployment Solution, allowing many more parameters to be specified.

NOTE: By default, a Deployment Server Console is installed on the computer on which the installation program is run. Additional Deployment Server Consoles can be installed later using the **Add Component** feature of the Install Wizard.

For instructions on completing a simple or custom installation, refer to the following sections.

Altiris eXpress Deployment Solution Simple Installation

The following section details how to perform a simple installation.

1. Select **Simple Install**, select the **Include PXE Server** checkbox, and then click **Install** to begin the installation process.

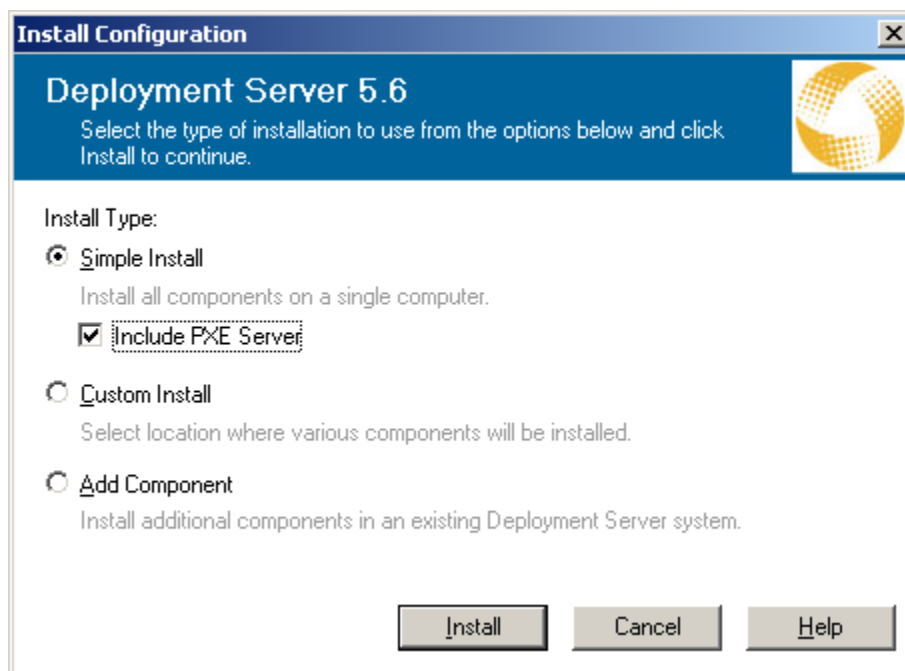


Figure 2-5: Simple installation

2. If installing on a system with multiple network interface cards (NICs), select the NIC to use as the Deployment Server interface, then click **Select IP**.

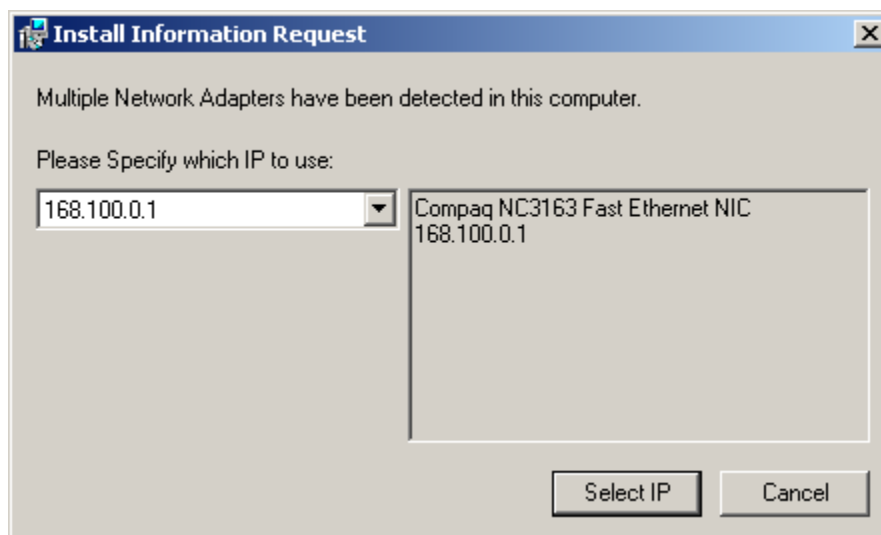


Figure 2-6: Multiple NIC prompt

IMPORTANT: It is difficult to change the IP settings to point to a different NIC after the Altiris software is installed on a system. Changing these settings could cause the Deployment Server to function incorrectly.

3. Read the license agreement. If you agree to the terms of the license agreement, click **Yes** to continue.

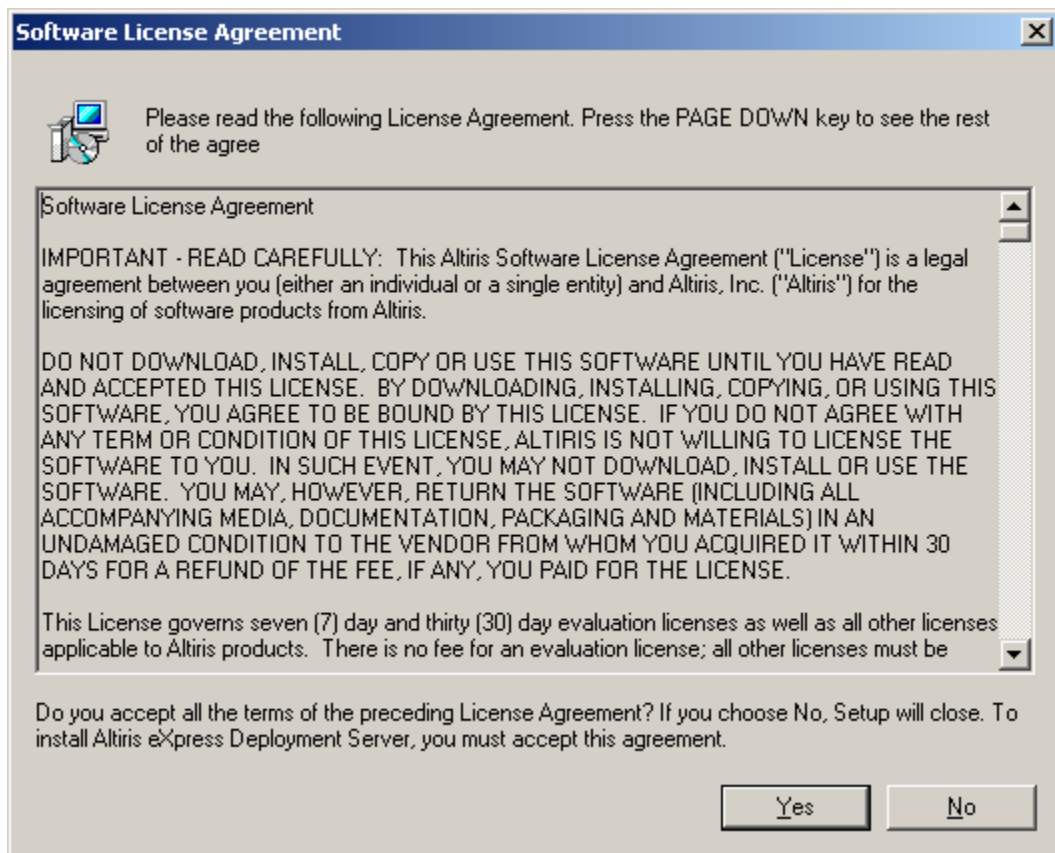


Figure 2-7: Altiris license agreement

4. At the **Deployment Server Client Access Point Information** screen, enter the user-specified information as appropriate, then click **Next**.
 - **File server path**—This is the default installation directory of Altiris eXpress. Accept the default path of .\program files\altiris\express\deployment server.

NOTE: Specify a drive with enough available space to hold the disk images that will be captured and deployed.

 - **Create eXpress share**—Be sure that this checkbox is selected (default).
 - **License file**—Select the **Free 7 day license or maintenance upgrade** option, or enter the path to the license file. For more information, refer to the “Licensing” section in this chapter.
 - **Service username**—Accept the default user name (be sure it has administrator privileges).
 - **Service Password**—Enter the appropriate password for the **Service username**.

Altiris eXpress Deployment Server Installation

Deployment Server Client Access Point Information
 Enter information about the Deployment Server Client Access Point where your images, RIPS, and Deployment program files should be installed.

Enter the directory to install the Deployment Server Client Access Point. This directory must be accessible from your Windows/DOS clients. This directory will store your images, RIPS, and DOS components

File server path:

☒ Create 'eXpress' share. All Deployment Clients must have access to this file server path.

☐ Free 7 day license or maintenance upgrade

☒ License file:

The following account must exist on the Deployment Server Client Access Point and the Deployment Server.

Service username: Service password:

< Back Next > Cancel Help

Figure 2-8: Client Access Point Information screen

- Click **Next** at the **Installation Information** screen. The Altiris eXpress software installation begins.

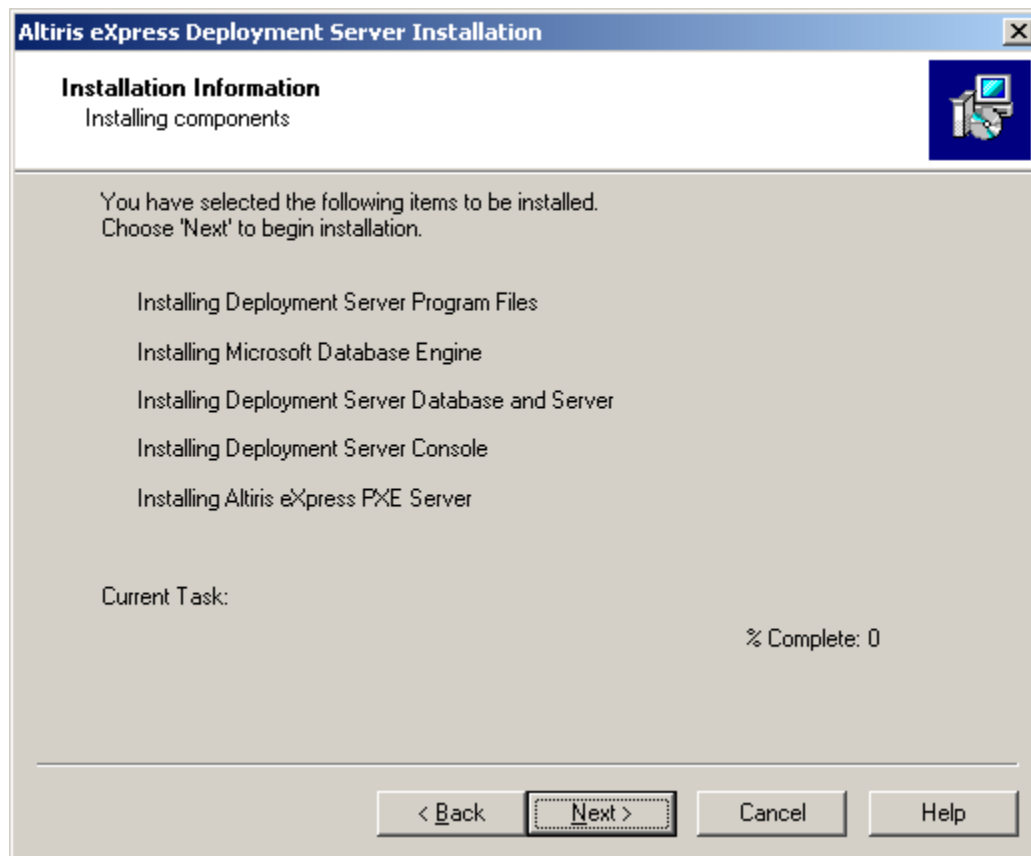


Figure 2-9: Installation information

- During the installation, you are prompted for either a Windows 9x boot diskette or CD from which to extract several DOS[®] files for creating PXE images and boot diskettes. Insert a Windows 9x boot diskette or CD, select the appropriate option, and then click **Next**. Follow the prompts to install the DOS files.

IMPORTANT: You are prompted for boot files from a Windows 9x boot diskette or CD. If these are provided from a diskette, the installation program may prompt for some optional DOS files. To omit copying the optional DOS files, select **No longer prompt for optional files**, then click **Finish**.

- If the Windows 9x CD is used to install DOS files when prompted, reinsert the Rapid Deployment Pack CD back into the CD-ROM drive to continue the Altiris eXpress installation.

8. The final screen enables you to remotely install clients or download Adobe® Acrobat®. Select the checkbox to download Adobe Acrobat if the Internet is accessible from the Deployment Server. Rapid Deployment Pack documentation and Altiris eXpress Deployment Solution documentation are displayed in PDF format.
9. Click **Finish**.

IMPORTANT: Do not install the Altiris Deployment Agent at this time. This can be installed after the initial Rapid Deployment Pack software installation is completed. For information about installing the Altiris Deployment Agent, refer to the *Altiris Deployment Solution 5.6 Product Guide*.

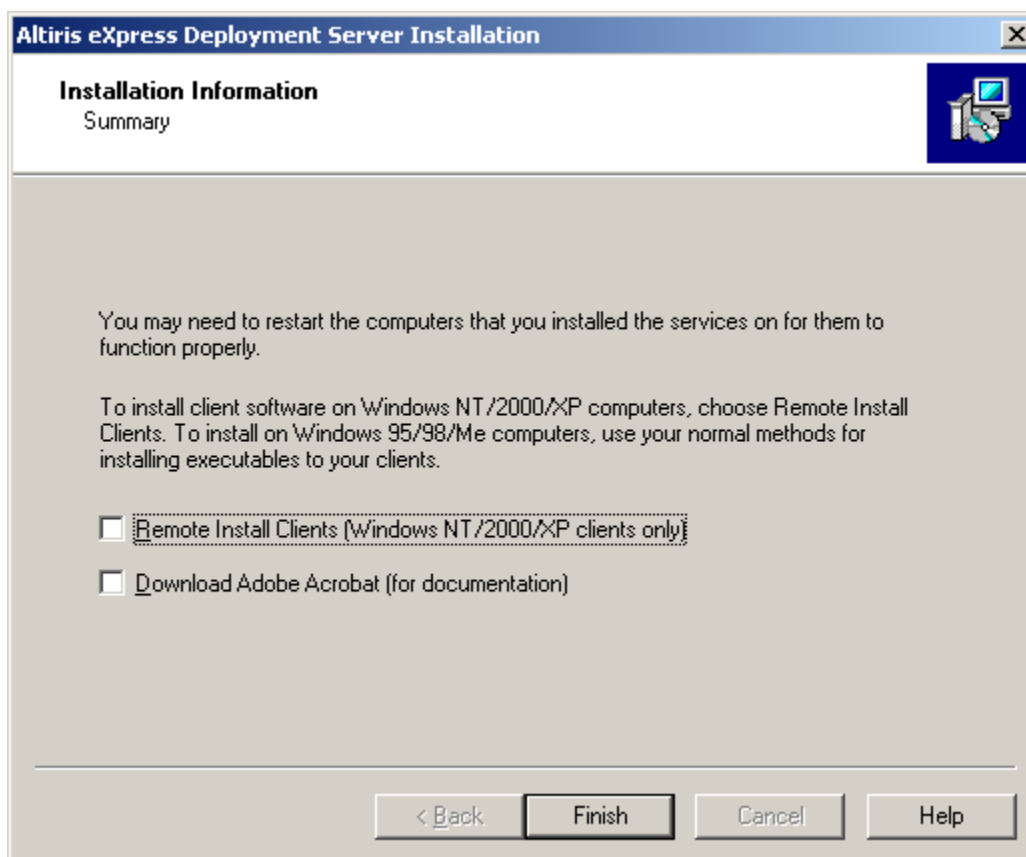


Figure 2-10: Final installation screen

10. Installation of Altiris eXpress Deployment Solution is now complete. Continue to the “ProLiant Integration Module for Deployment Server Installation” section.

Altiris eXpress Deployment Solution Custom Installation

The following section details how to perform a custom installation.

1. Select **Custom Install**, then click **Install** to begin the installation process.

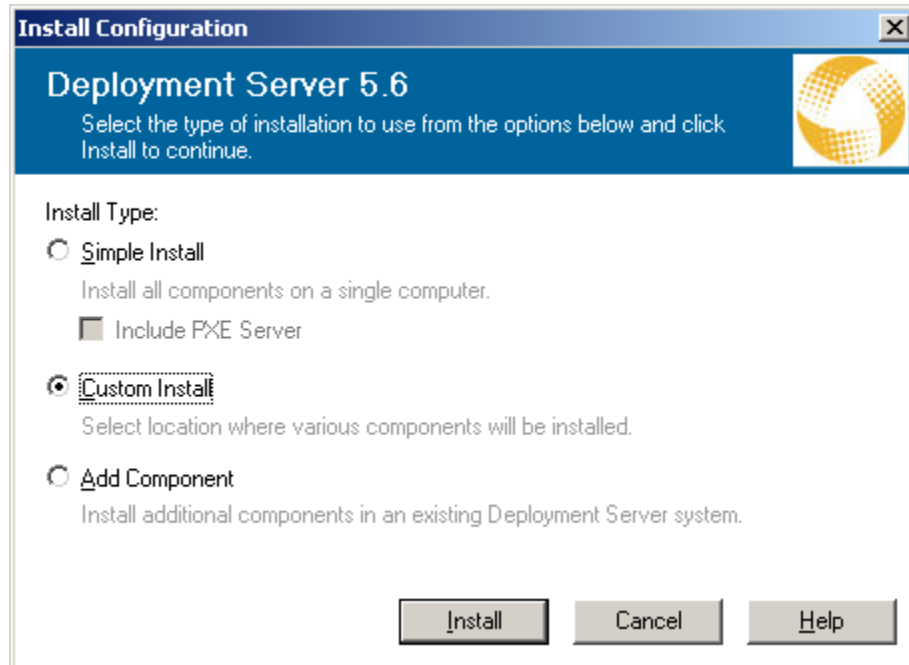


Figure 2-11: Custom installation

2. Read the license agreement. If you agree to the terms of the license agreement, click **Yes** to continue.

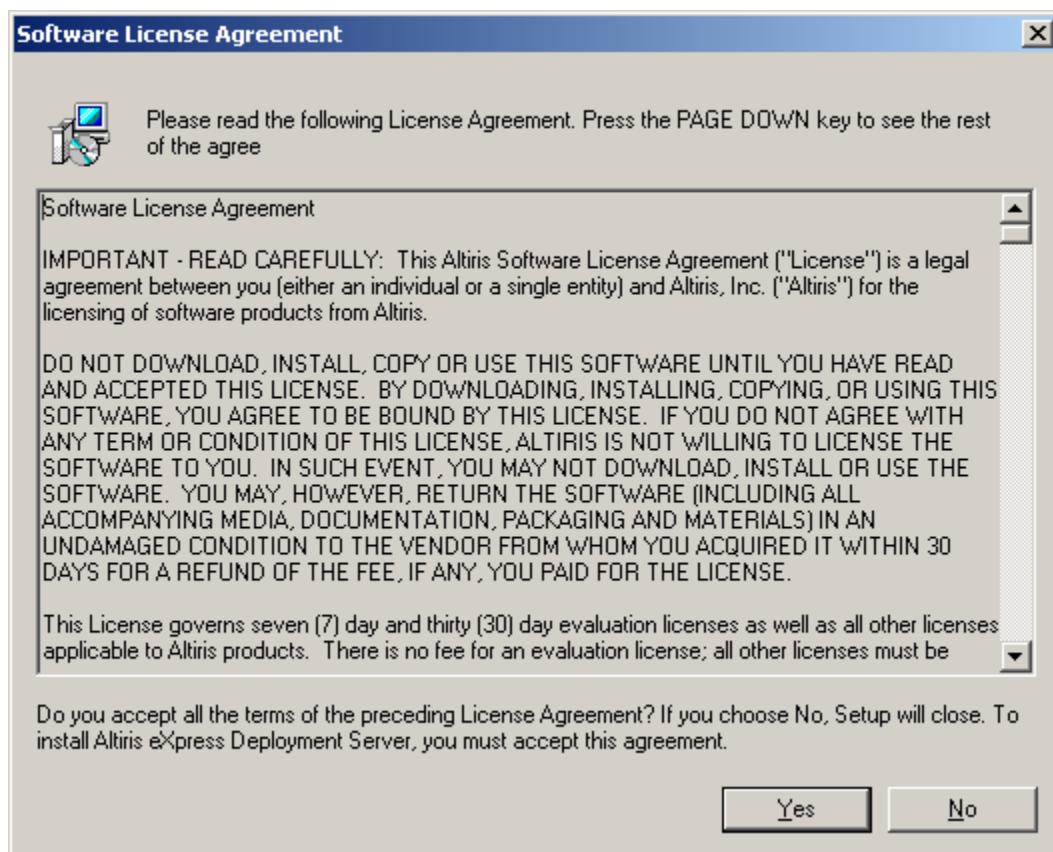


Figure 2-12: Altiris license agreement

3. At the **Deployment Server Client Access Point Information** screen, enter the user-specified information as appropriate, then click **Next**.
 - **File server path**—This is the default installation directory of Altiris eXpress. Accept the default path of `.\\program files\\altiris\\express\\deployment server`.

NOTE: Specify a drive with enough available space to hold the disk images that will be captured and deployed.
 - **Create eXpress share**—Be sure that this checkbox is selected (default).
 - **License file**—Select the **Free 7 day license or maintenance upgrade** option, or enter the path to the license file. For more information, refer to the “Licensing” section in this chapter.

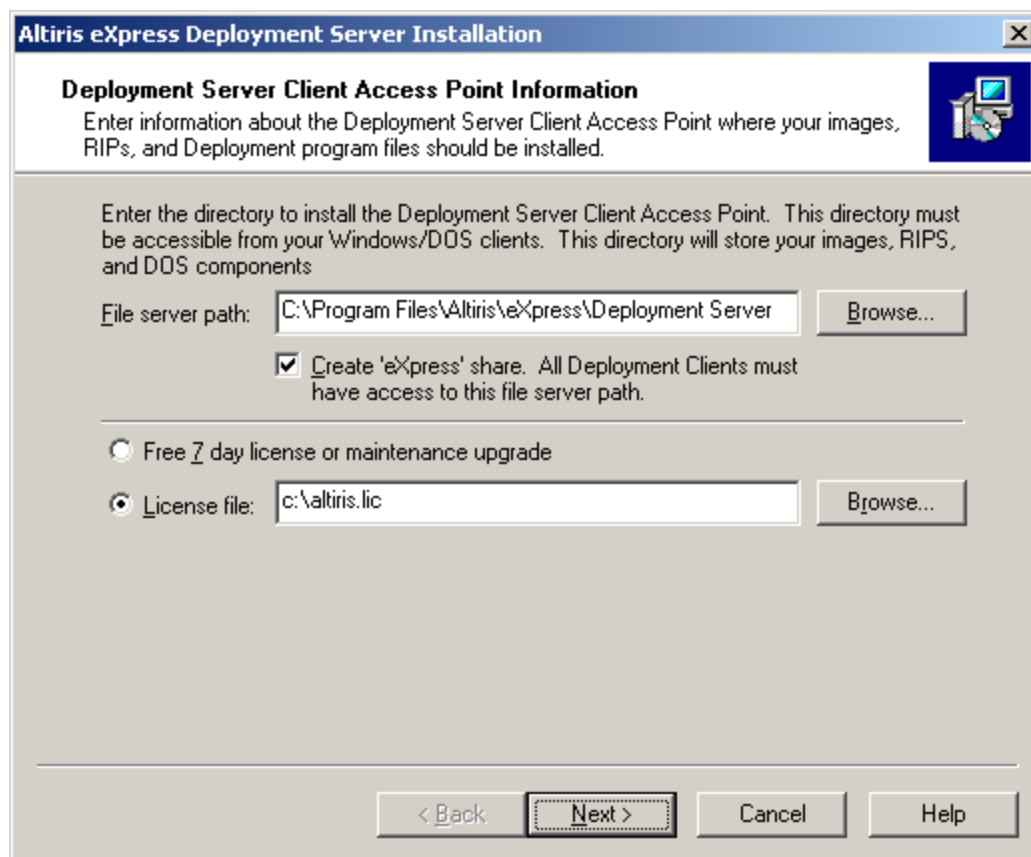
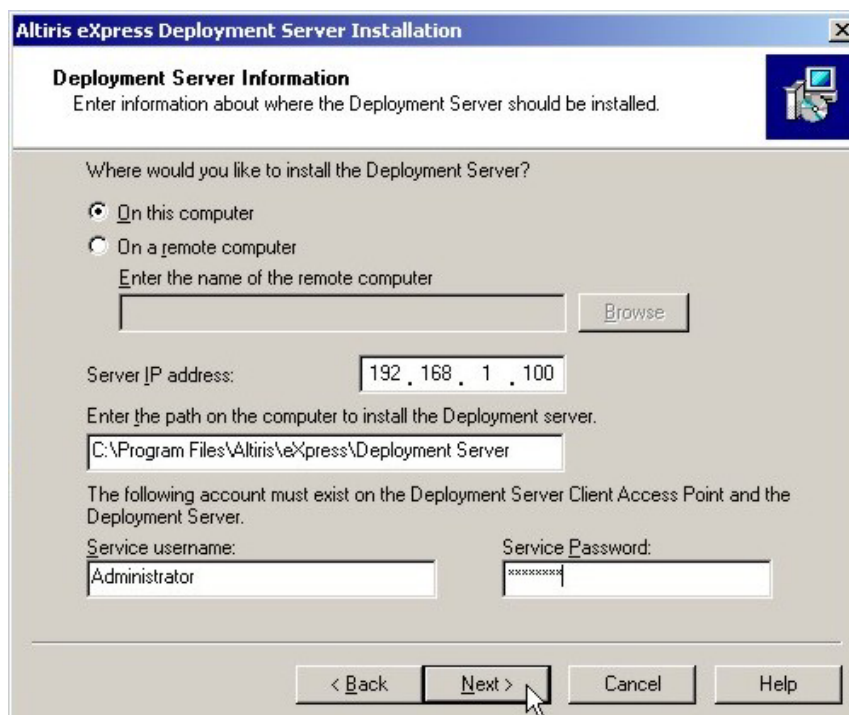


Figure 2-13: Client Access Point Information screen

4. At the **Deployment Server Information** screen, enter the user-specified information as appropriate, then click **Next**.
 - a. Select **On this computer** to install the Deployment Server on the local computer, or select **On a remote computer** and enter the computer name of the remote computer to install the Deployment Server on an existing server.
 - b. Enter the **IP address** of the interface that the Deployment Server will use.
 - c. Enter the **directory path** where the Deployment Server files are installed. This should be the same location as used in the previous screen (accept the default).
 - d. Enter the **Service username** and **Service Password** of the Administrator account.



The screenshot shows a Windows-style dialog box titled "Altiris eXpress Deployment Server Installation". Inside, the "Deployment Server Information" section asks for installation details. The "On this computer" radio button is selected. The "Server IP address" field contains "192.168.1.100". The directory path field shows "C:\Program Files\Altiris\express\Deployment Server". The "Service username" is "Administrator" and the "Service Password" is masked with asterisks. Navigation buttons at the bottom include "< Back", "Next >" (highlighted by a mouse cursor), "Cancel", and "Help".

Figure 2-14: Deployment Server Console Information screen

5. At the **Deployment Server Database** screen, enter the user-specified information as appropriate, then click **Next**. Select:
 - a. **On this computer** if Microsoft Data Engine (MSDE) will be installed on this computer (whether or not the Deployment Server is installed on this computer).
 - b. **On the same computer as the Deployment Server** if MSDE will be installed on the same computer as you specified for the Deployment Server.
 - c. **On a remote computer** if MSDE will be installed on a remote computer.
 - d. **On an existing Microsoft SQL Server 7/2000 database** if a SQL 7 or SQL 2000 installation exists on any server that will be used to store the Deployment Server database (if SQL is installed on the current machine, its name automatically displays in the field).

NOTE: If a selection is chosen to install MSDE, the desired installation path for the database engine and the database data is required.

Altiris eXpress Deployment Server Installation

Deployment Server Database
Enter information about where your database should be installed

Where would you like your Deployment Server Database installed?

☐ On this computer.

☐ On the same computer as the Deployment Server

☐ On a remote computer
Enter the name of the remote computer

☒ On an existing Microsoft SQL Server 7/2000 database
Enter the name of the existing SQL server

DEPLOY1

Enter the path on the computer for the database engine

c:\mssql7

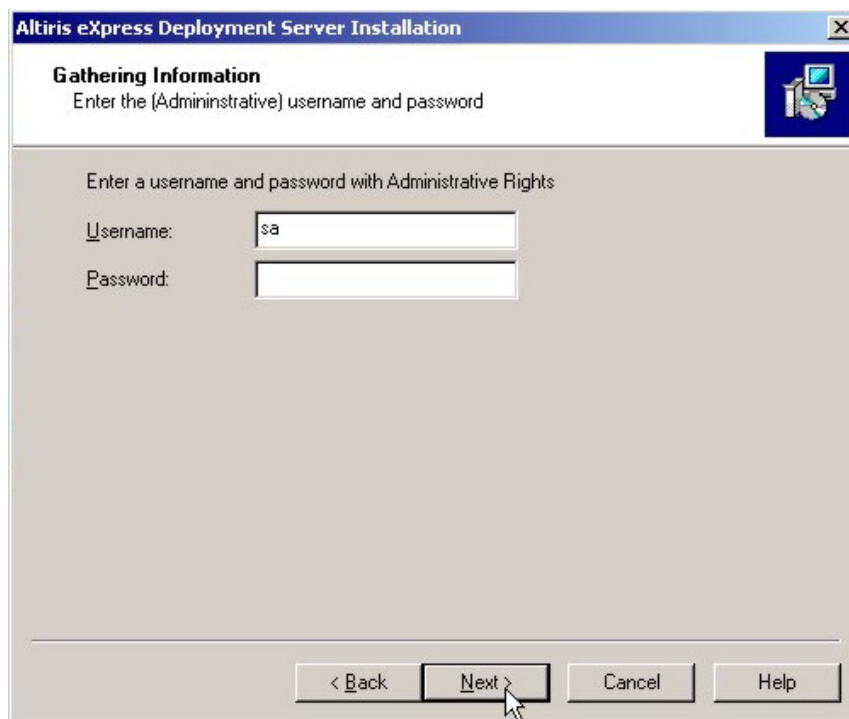
Enter the path on the computer for the database data

c:\mssql7\data

< Back Next > Cancel Help

Figure 2-15: Deployment Server Database screen

6. If you selected to install to an existing SQL database, the **Gathering Information** screen displays, allowing the name and password for accessing the SQL server to be entered. If a unique name and password has been specified during SQL install, it can be entered here. Enter the appropriate SQL user name and password in the fields provided, and click **Next** to continue.



The screenshot shows a Windows-style dialog box titled "Altiris eXpress Deployment Server Installation". Inside, the "Gathering Information" section prompts the user to "Enter the (Administrative) username and password". Below this, a sub-prompt says "Enter a username and password with Administrative Rights". There are two input fields: "Username:" with the text "sa" entered, and "Password:" which is empty. At the bottom, there are four buttons: "< Back", "Next >", "Cancel", and "Help". A mouse cursor is pointing at the "Next >" button.

Figure 2-16: Gathering Information screen

7. At the **PXE Server Information** screen, specify where the PXE server will be located, then click **Next** to continue.
 - a. Select:
 - **No, I will be using the DOS client (Bootworks) on each client computer** when DHCP is not available on the network or when PXE will not be installed.
 - **Yes, I want to install PXE on this computer** when PXE will be installed on this computer.
 - **Yes, I want to install PXE on a remote computer** when PXE will be installed on an existing server in the network.
 - b. Be sure that **Make this server the Master PXE server** is selected.
 - c. Be sure the IP address for the PXE server matches the IP address of the server specified previously.
 - d. Be sure the IP address for the Deployment Server matches the IP address specified previously.
 - e. Accept the default path given to install PXE service.
 - f. Be sure **Create default PXE boot files** is selected.

Altiris eXpress Deployment Server Installation

PXE Server Information
Enter information about PXE

Do you wish to use PXE?

☐ No, I will be using the DOS client (Bootworks) on each client computer

☒ Yes, I want to install PXE on this computer

☐ Yes, I want to install PXE on a remote computer

Remote Computer Name:

☒ Make this server the Master PXE server

PXE server IP address:

Deployment Server IP Address:

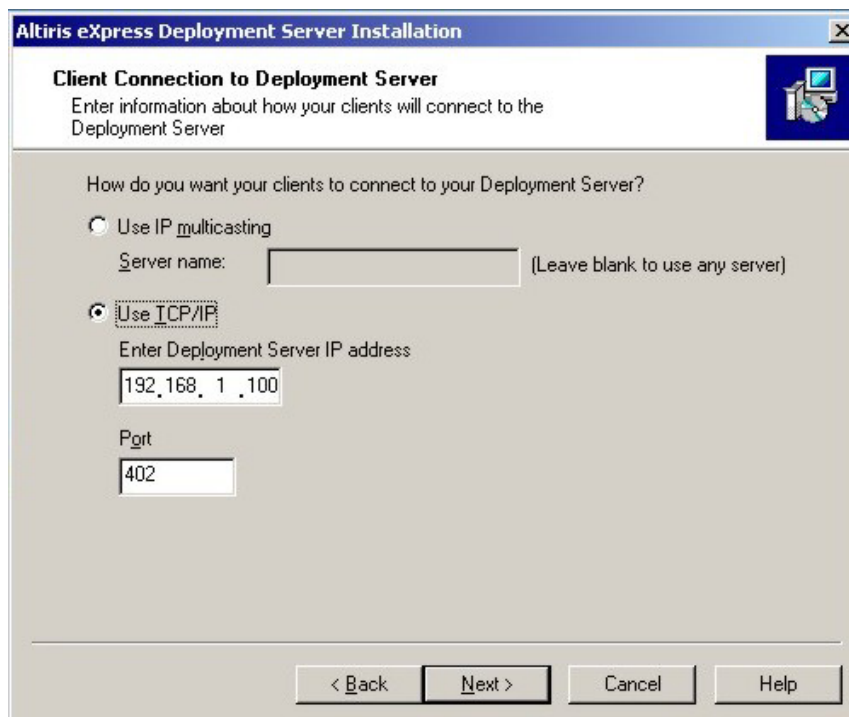
Enter the path on the computer to install PXE service.

☒ Create default PXE boot files

< Back Next > Cancel Help

Figure 2-17: PXE Server Information screen

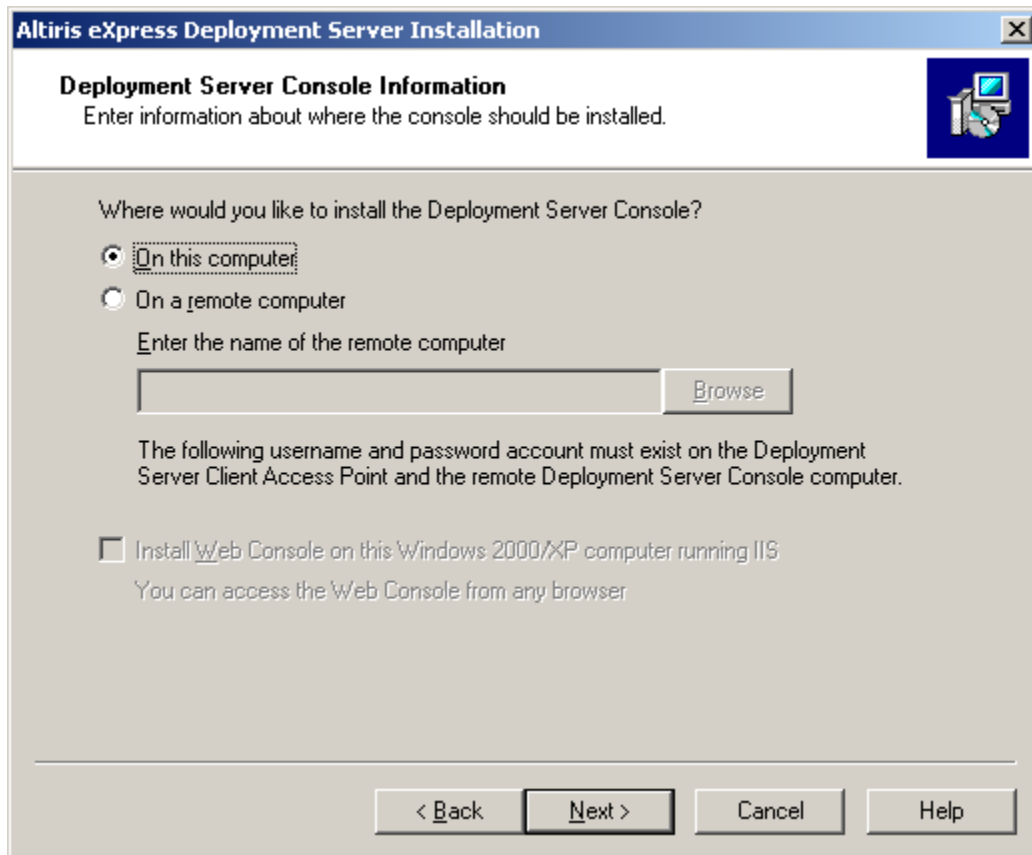
8. At the **Client Connection to Deployment Server** screen, specify how the client will connect to the Deployment Server, then click **Next** to continue.
 - a. Select **Use TCP/IP** to be sure that the clients connect directly to the Deployment Server.
 - b. Be sure that the IP address is correct for the Deployment Server.



The screenshot shows a Windows-style dialog box titled "Altiris eXpress Deployment Server Installation". The main heading is "Client Connection to Deployment Server" with a sub-instruction: "Enter information about how your clients will connect to the Deployment Server". A small icon of a computer with a network cable is in the top right corner. The question "How do you want your clients to connect to your Deployment Server?" is followed by two radio button options. The first is "Use IP multicasting" with a text field for "Server name:" and a note "(Leave blank to use any server)". The second option, "Use TCP/IP", is selected. Below it, there is a label "Enter Deployment Server IP address" followed by a text field containing "192.168.1.100". Below that is a "Port" label with a text field containing "402". At the bottom, there are four buttons: "< Back", "Next >", "Cancel", and "Help".

Figure 2-18: Client Connection to Deployment Server

9. At the **Deployment Server Console Information** screen, determine the GUI console location, then click **Next** to continue.
 - a. If the console will be on the current Deployment Server, select **On this computer**.
 - b. If the console will be on a remote computer, select **On a remote computer**, and enter the name of the remote computer.



The image shows a Windows-style dialog box titled "Altiris eXpress Deployment Server Installation". The main heading is "Deployment Server Console Information" with a subtitle "Enter information about where the console should be installed." and a small icon of a computer with a monitor. The dialog asks "Where would you like to install the Deployment Server Console?". There are two radio button options: "On this computer" (which is selected) and "On a remote computer". Below the "On a remote computer" option is a text field labeled "Enter the name of the remote computer" with a "Browse" button to its right. A note states: "The following username and password account must exist on the Deployment Server Client Access Point and the remote Deployment Server Console computer." Below this is a checkbox labeled "Install Web Console on this Windows 2000/XP computer running IIS" with a sub-note "You can access the Web Console from any browser". At the bottom are four buttons: "< Back", "Next >", "Cancel", and "Help".

Figure 2-19: Deployment Server Console Information

10. Click **Next** at the **Installation Information** screen. The Altiris eXpress software installation begins.

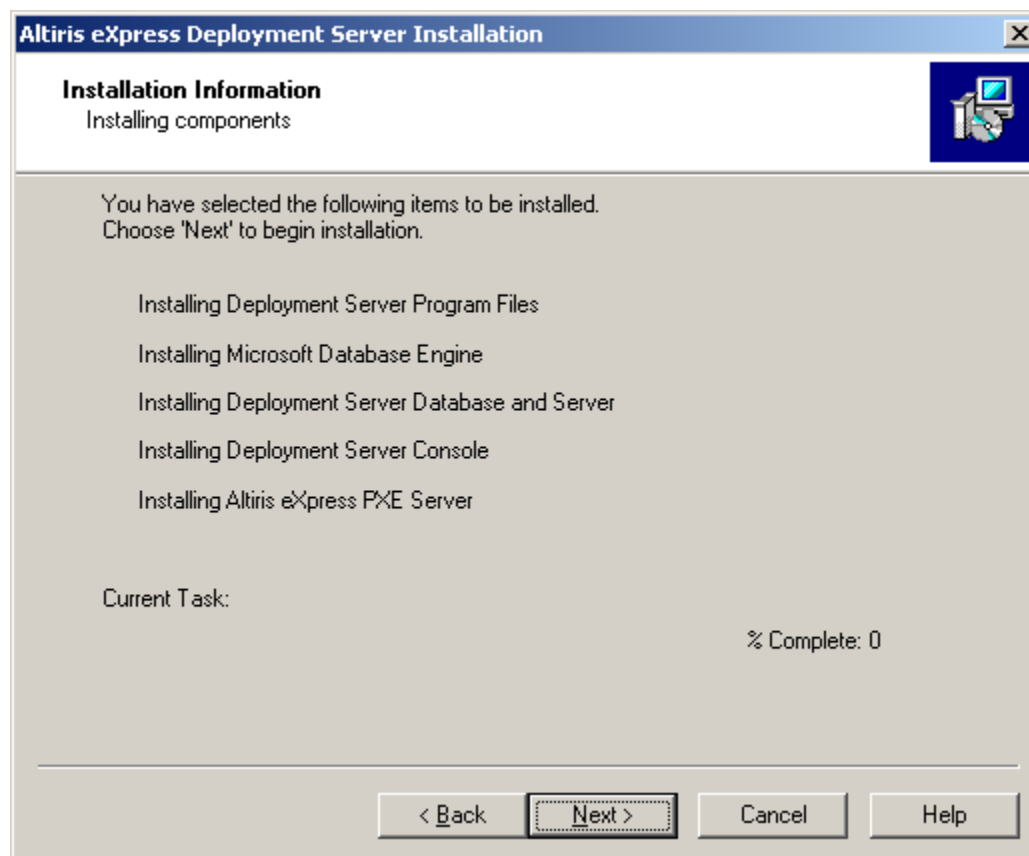


Figure 2-20: Installation Information

11. During the installation, you are prompted for either a Windows 9x boot diskette or CD from which to extract several DOS files for creating PXE images and boot diskettes. Insert a Windows 9x boot diskette or CD, select the appropriate option, and then click **Next**. Follow the prompts to install the DOS files.

IMPORTANT: You are prompted for boot files from a Windows 9x boot diskette or CD. If these files are provided from a diskette, the installation program might prompt for some optional DOS files. To omit copying the optional DOS files, select **No longer prompt for optional files**, then click **Finish**.

12. If the Windows 9x CD was used to install DOS files when prompted, reinsert the Rapid Deployment Pack CD in the CD-ROM drive to continue the Altiris eXpress installation.

13. The final screen enables you to remotely install clients or download Adobe Acrobat. Select the checkbox to download Adobe Acrobat if the Internet is accessible from the Deployment Server. Rapid Deployment Pack documentation and Altiris eXpress Deployment Solution documentation are displayed in PDF format.

Do not install the Altiris Deployment Agent at this time. This can be installed after the initial Rapid Deployment Pack software installation is complete. For information about installing the Altiris Deployment Agent, refer to the *Altiris Deployment Solution 5.6 Product Guide*.

14. Click **Finish**.

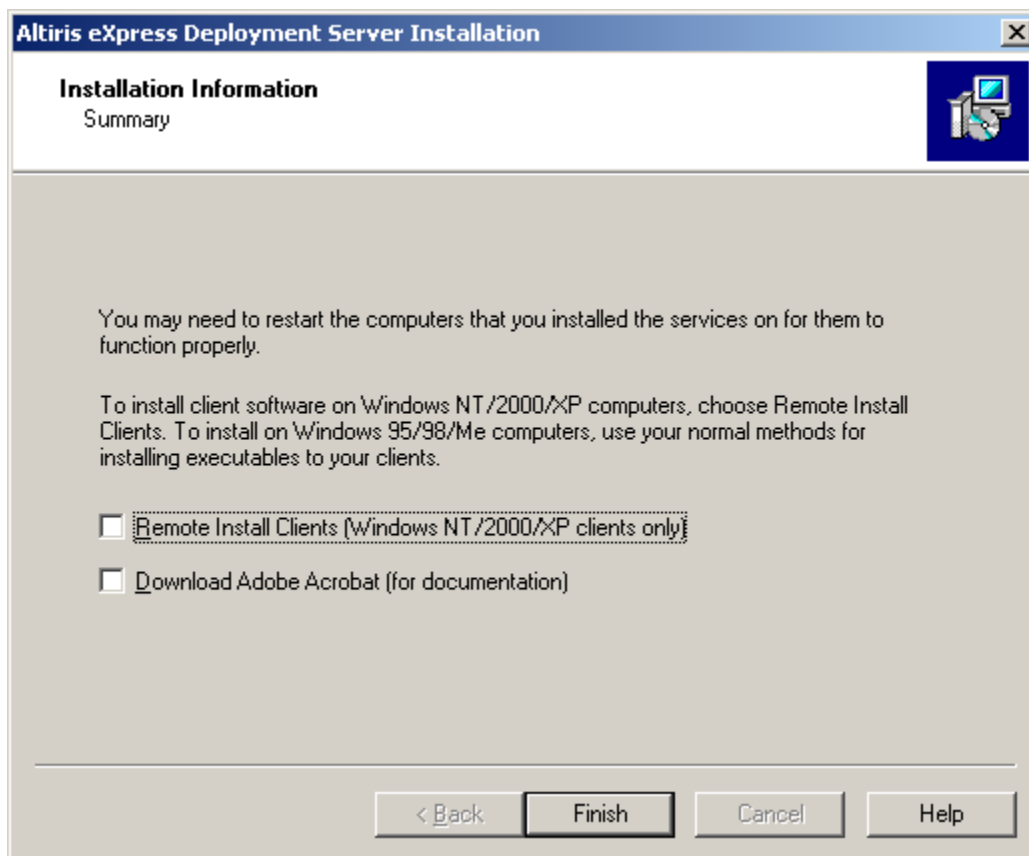


Figure 2-21: Final installation screen

15. Installation of Altiris eXpress Deployment Solution is now complete. Continue to the "ProLiant Integration Module for Deployment Server Installation" section.

ProLiant Integration Module for Deployment Server Installation

IMPORTANT: If a custom installation of the Altiris eXpress Deployment Solution was performed, the ProLiant Integration Module for Deployment Server must be installed on the same machine on which the Altiris eXpress Deployment Server Console component was installed.

To install the ProLiant Integration Module for Deployment Server:

1. Click **(2) HP ProLiant Integration Module for Deployment Server** from the left pane of the autorun menu, then click **HP ProLiant Integration Module for Deployment Server X.XX**, where X.XX is the version of the software.

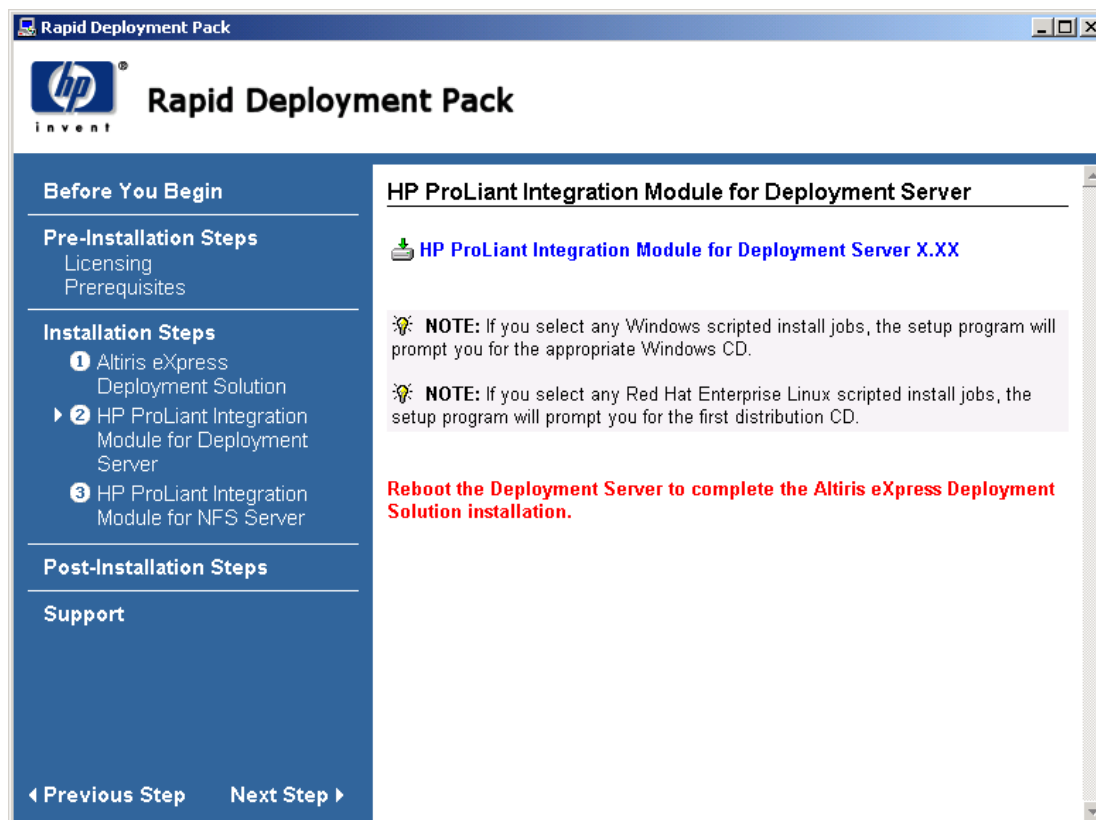


Figure 2-22: ProLiant Integration Module for Deployment Server installation

2. Read the license agreement. If you agree to the terms of the license agreement, select **I agree to all the terms of the preceding License Agreement**, then click **Next** to continue.

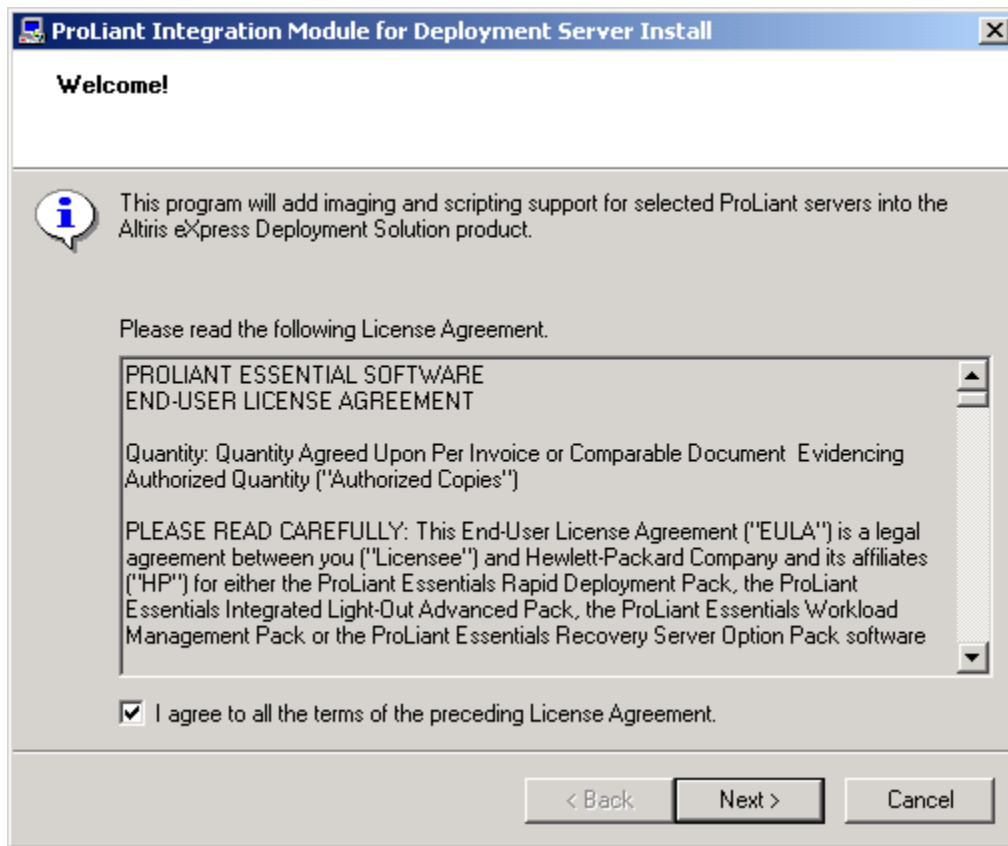


Figure 2-23: ProLiant Essentials license agreement

3. A list of deployment jobs displays. Select the deployment jobs that will be imported into the Deployment Server Console based on your deployment needs, then click **Next**. The provided deployment jobs consist of:
 - **Scripted Install Jobs**—Enables a scripted hardware configuration and operating system installation of Microsoft Windows, Red Hat Linux, or UnitedLinux to be performed on an unconfigured ProLiant server.
 - **Imaging Jobs**—Enables capture of the hardware configuration of a server and an image of a server hard drive, including the operating system and software applications, and deploys this hardware configuration and image to unconfigured ProLiant servers.
 - **Hardware Configuration Jobs**—Enables capture of the hardware configuration of an existing server and deploy that configuration to other servers.
 - **Packaged Cluster Jobs**—Enables deployment of ProLiant DL380 Packaged Clusters using either imaging or scripting.

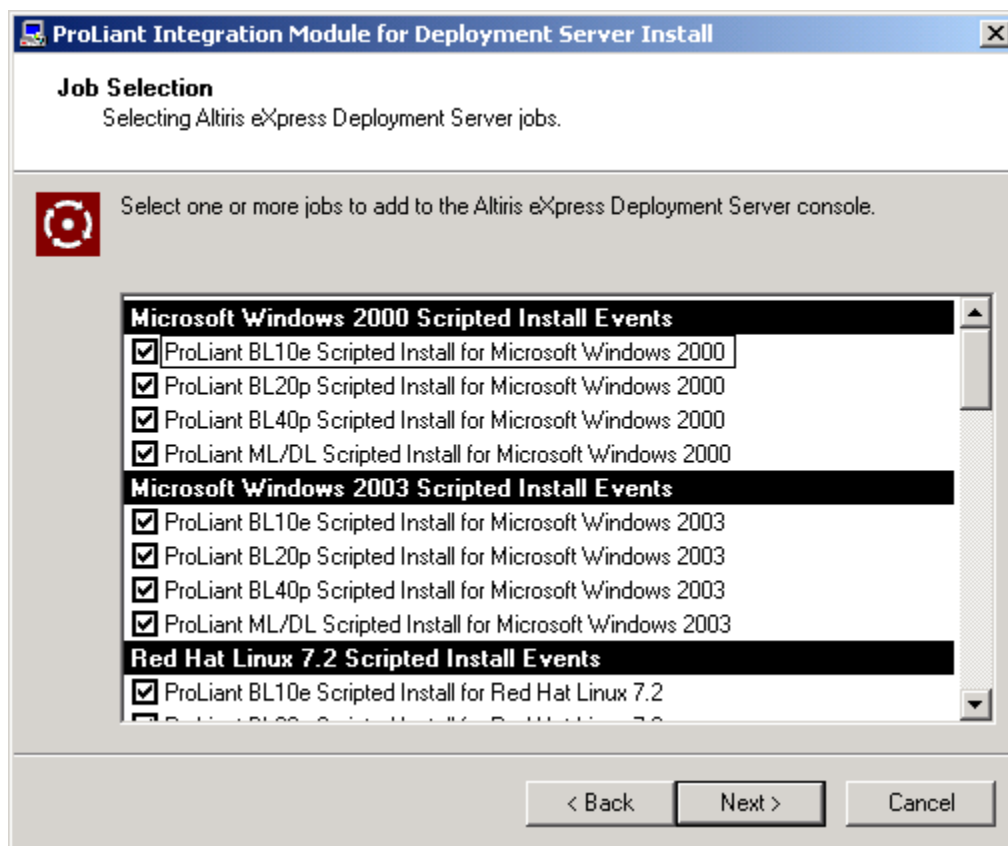


Figure 2-24: Provided deployment jobs

4. At the **Installation** screen, click **Next** to start the installation.

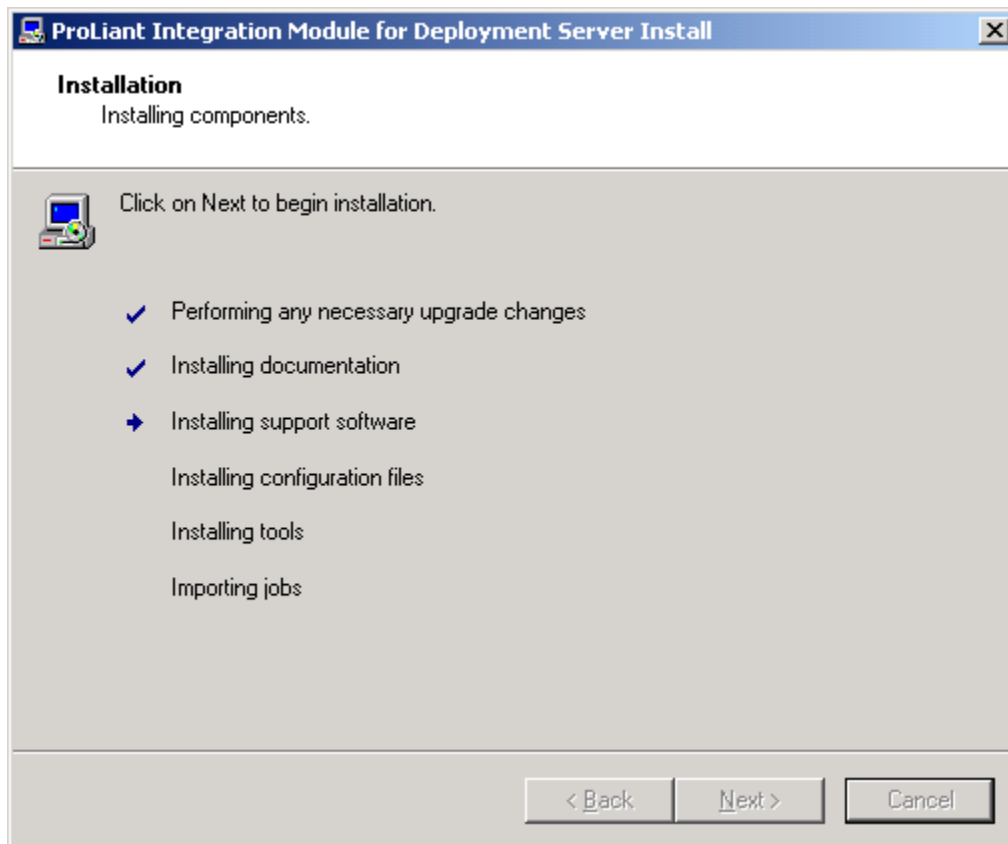


Figure 2-25: Installation screen

5. If necessary, you are prompted to insert operating system CDs to allow appropriate files required for scripted install jobs to be copied to the Deployment Server directory. Click **Next** to begin the copy process.

IMPORTANT: If you skip the Windows operating system CD and/or Red Hat Enterprise Linux boot file copying steps at this time by clicking **Cancel**, you can manually install these files at a later time. For instructions, refer to “Manually Installing Operating System CDs” in this chapter.

NOTE: You are prompted for Red Hat Enterprise Linux 2.1 CD #1 to copy only the Linux boot files to the Deployment Server. The Red Hat Enterprise Linux distribution CDs are still installed on the Linux NFS server. The version and Update of the CDs used during the installation of the NFS server and the Deployment Server must match.

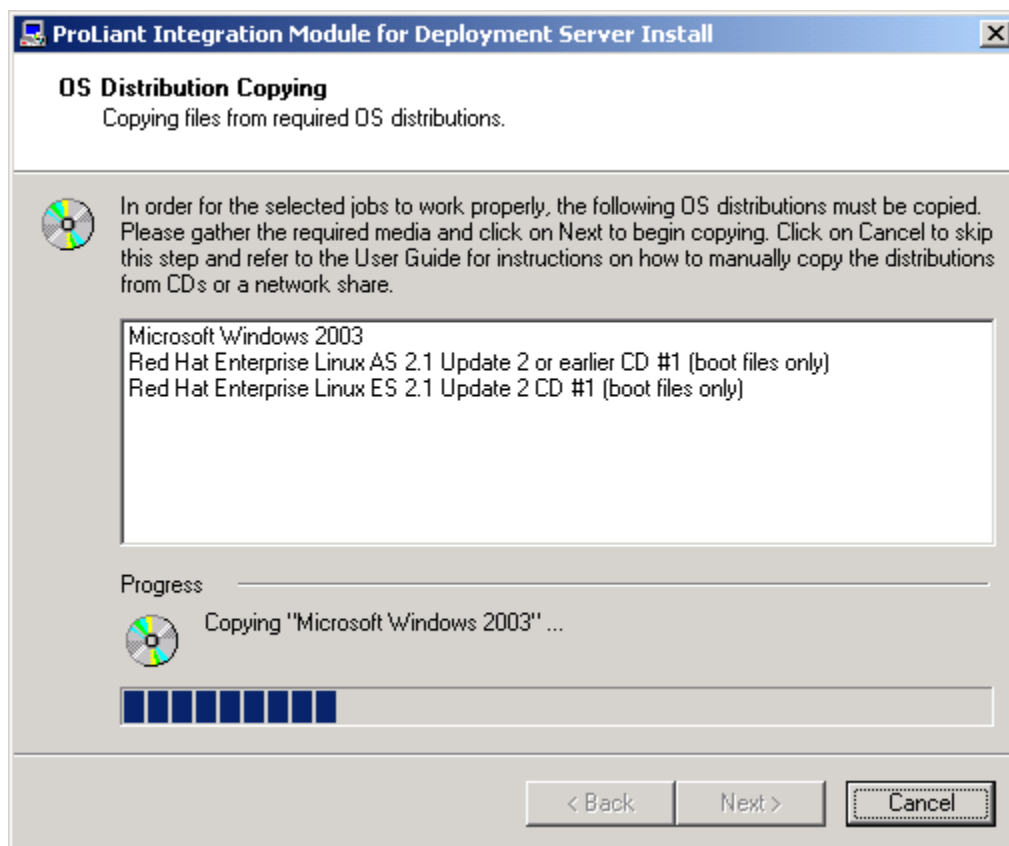


Figure 2-26: OS CD Copying screen

6. Read the post-installation information displayed at the **Finish** screen, then click **Finish**.

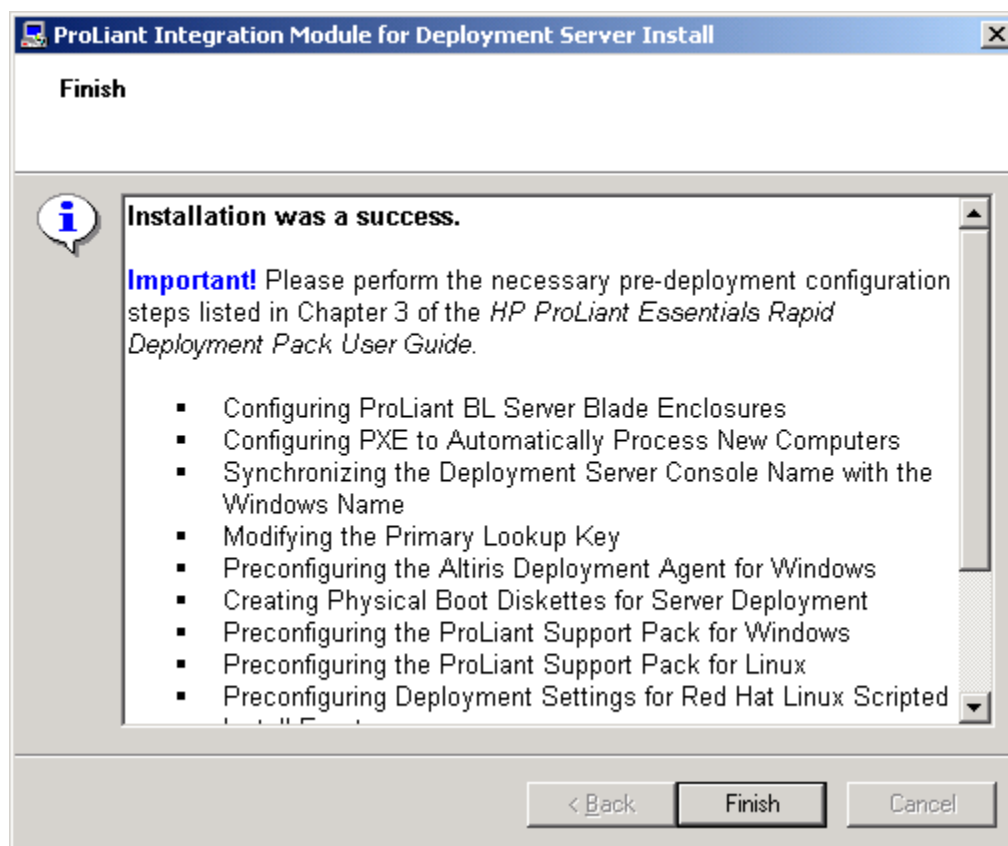


Figure 2-27: Final installation screen

7. Reboot the deployment server to complete the Altiris eXpress Deployment Server installation.

Installation Complete

The ProLiant Integration Module for Deployment Server installation is now complete. For any post-installation procedures that might be required to complete the Deployment Server installation, refer to “First-Time Installation” in Chapter 3.

Linux NFS Server Installation

A Linux NFS server is required to deploy Linux using the provided scripted install jobs.

The Rapid Deployment Pack uses NFS as the Linux installation method for the following reasons:

- The NFS installation method works best across the various Linux distributions.
- Advanced Linux users can use a Linux server running NFS to build kernels, drivers, or other components that can be installed along with the distribution.

Installation Requirements

Before you begin the Linux NFS server installation, be sure that you have the following items available:

- Rapid Deployment Pack CD
- Red Hat Linux or UnitedLinux distribution CDs

Starting the Installation

To install the Rapid Deployment Pack on the Linux NFS server:

1. Log in as root.
2. Insert the Rapid Deployment Pack CD into the CD-ROM drive.

3. Mount the CD using the command:

```
mount /mnt/cdrom (Red Hat Linux)
```

or

```
mount /media/cdrom (UnitedLinux)
```

NOTE: If you are running GNOME or KDE, you must close the file manager window for the CD (and any other open connections to the CD) so the CD can be ejected to insert the Linux distribution CDs later in the process.

ProLiant Integration Module for NFS Server Installation

To install the ProLiant Integration Module for NFS server:

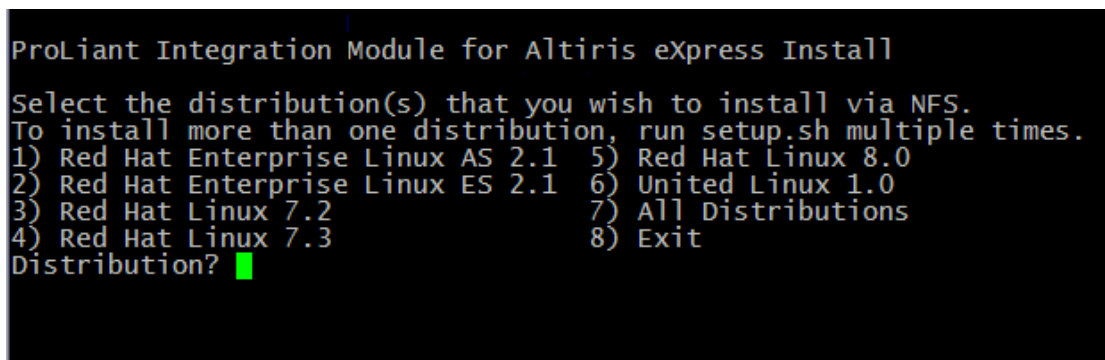
1. Run the Linux NFS server setup script by entering the command:

```
/mnt/cdrom/pim-nfs/setup-pimnfs.sh (Red Hat Linux)
```

or

```
/media/cdrom/pim-nfs/setup-pimnfs.sh (UnitedLinux)
```

2. Enter the appropriate number for the distribution you want to install using NFS, then press the **Enter** key.



```
ProLiant Integration Module for Altiris eXpress Install
Select the distribution(s) that you wish to install via NFS.
To install more than one distribution, run setup.sh multiple times.
1) Red Hat Enterprise Linux AS 2.1  5) Red Hat Linux 8.0
2) Red Hat Enterprise Linux ES 2.1  6) United Linux 1.0
3) Red Hat Linux 7.2               7) All Distributions
4) Red Hat Linux 7.3               8) Exit
Distribution? █
```

Figure 2-28: Selecting distribution

3. When prompted for a Linux distribution CD, remove the current CD from the CD-ROM drive and insert the specified distribution CD.

IMPORTANT: The version and Update of the Red Hat Enterprise Linux CDs used during the installation of the NFS server and the Deployment Server must match.

4. Read the on-screen information, and press the **Enter** key to continue.

IMPORTANT: If you choose not to install the distribution CDs at this time, refer to “Manually Installing Linux Distribution CDs” in this chapter to manually install the CDs into the NFS server directory at a later time.

Installation Complete

The Linux NFS server installation is now complete. However, before attempting to perform scripted installs of Linux distributions using the Rapid Deployment Pack, complete the procedures in either the “Preconfiguring Deployment Settings for Red Hat Linux Scripted Install Jobs” section or the “Preconfiguring Deployment Settings for UnitedLinux Scripted Install Jobs” section in Chapter 3.

Upgrading Existing Rapid Deployment Pack Installations

This section provides information about upgrading to the new version of the Rapid Deployment Pack.

Deployment Server Upgrade

The following sections describe how to upgrade the software currently installed on the Deployment Server.

Starting the Upgrade

IMPORTANT: Be sure to shut down the Deployment Server Console before attempting to upgrade the Rapid Deployment Pack software.

To upgrade the Rapid Deployment Pack software on the Deployment Server:

1. Insert the Rapid Deployment Pack CD into the Deployment Server.

2. Read the license agreement. If you agree to the terms of the license agreement, click **Agree** to continue.



Figure 2-29: Rapid Deployment Pack license agreement

An autorun menu displays.



Figure 2-30: Upgrade autorun menu

Upgrading the Altiris eXpress Deployment Solution

To upgrade the Altiris eXpress Deployment Solution:

1. From the **Software Upgrades** page, click **Altiris eXpress Deployment Solution X.XX**, where X.XX is the version of the software.
2. Select the same installation method used for the initial installation (either **Simple Install** or **Custom Install**). If **Simple Install** is selected, unselect the **Include PXE Server** checkbox.
3. Click **Install** to begin the upgrade process.
4. When prompted to select if you want to use the database from the previous version of the Altiris eXpress Deployment Solution, click **Yes** to keep all of the data intact.

IMPORTANT: If you do not keep the existing database, all deployment history, customized jobs, and servers listed in the Deployment Server Console are lost.

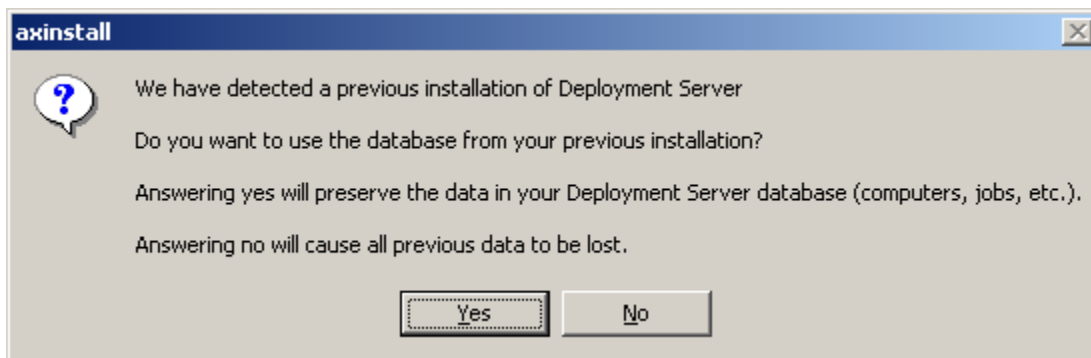


Figure 2-31: Previous installation detected

5. Read the license agreement. If you agree to the terms of the license agreement, click **Yes** to continue.

6. At the **Deployment Server Client Access Point Information** screen, select the **Free 7 day license or maintenance upgrade** option, enter the appropriate password for the **Service username**, then click **Next**.

Figure 2-32: Client Access Point Information screen

7. Click **Next** at the **Installation Information** screen to begin the software installation.
8. When prompted to replace the eXpress share, click **Yes**.
9. When prompted to recreate the boot images, click **Yes**.
10. Click **Finish** at the **Installation Information Summary** screen.

Upgrading the ProLiant Integration Module for Deployment Server

To upgrade the ProLiant Integration Module for Deployment Server:

1. From the **Software Upgrades** page, click **HP ProLiant Integration Module for Deployment Server X.XX**, where X.XX is the version of the software.
2. If you agree to the terms of the license agreement, select **I Agree to all the terms of the preceding License Agreement**, then click **Next** to continue.
3. Select the deployment jobs that you want to import into the Deployment Server Console, then click **Next**.
4. Click **Next** at the **Installation** screen to begin the software installation.

New versions of the Rapid Deployment Pack might contain updated versions of the ProLiant Support Pack files. The new support files are added to the deployment tree at `.\deploy\cds\compaq\ss.xxx`, where xxx represents the new version of the support files. Any updated or new jobs reference the new support files. To update the existing jobs to use these updated support files, you must manually edit the jobs. For complete instructions on editing the jobs to use updated support files, refer to Chapter 5.

5. When prompted, select whether to skip or overwrite existing configuration files, located in `.\deploy\configs`. All files other than the configuration files are overwritten automatically, including documentation, the SmartStart Scripting Toolkit, and batch files used by the jobs.

IMPORTANT: If you have modified any of the provided batch files, be sure you have made backup copies of these altered batch files (located in `.\deploy\tools\scripts`), since they are overwritten with new files.

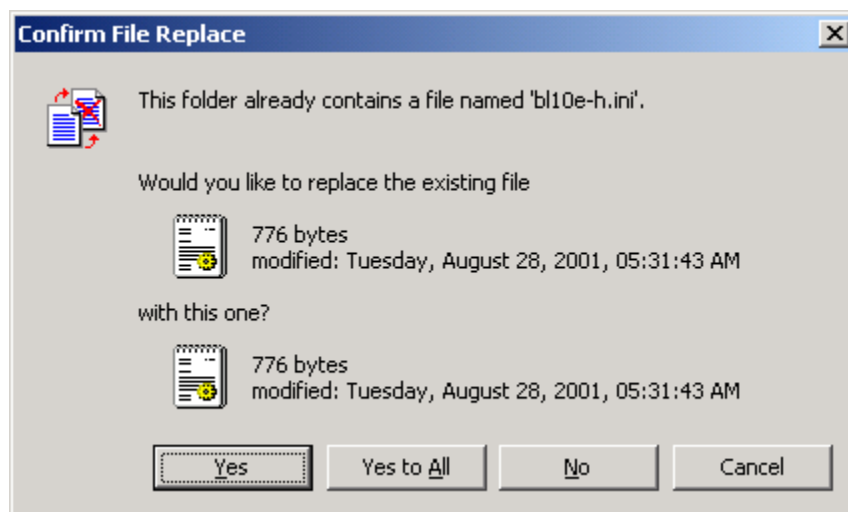


Figure 2-33: Replace batch file prompt

- When prompted, select whether to omit or overwrite any existing jobs in the Deployment Server Console with updated jobs.

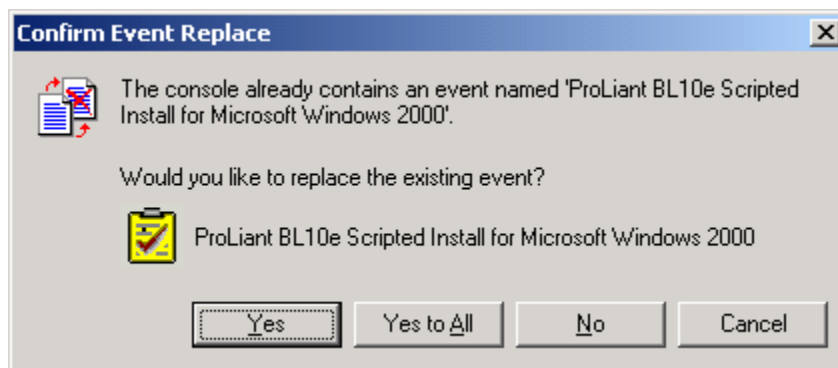


Figure 2-34: Replace job prompt

IMPORTANT: If you have modified any of the provided jobs, be sure you have renamed these jobs and made backup copies before choosing to overwrite the existing jobs.

- If necessary, you are prompted to insert operating system CDs to allow appropriate files required for scripted install jobs to be copied to the Deployment Server directory. Click **Next** to begin the copy process.

IMPORTANT: If you skip the Windows operating system CD and/or Red Hat Enterprise Linux boot file copying steps at this time by clicking **Cancel**, you can manually install these files at a later time. For instructions, refer to "Manually Installing Operating System CDs" in this chapter.

NOTE: You are prompted for Red Hat Enterprise Linux 2.1 CD #1 to copy only the Linux boot files to the Deployment Server. The Red Hat Enterprise Linux distribution CDs are still installed on the Linux NFS server. The version and Update of the CDs used during the installation of the NFS server and the Deployment Server must match.

- Click **Finish** when the software installation is complete.

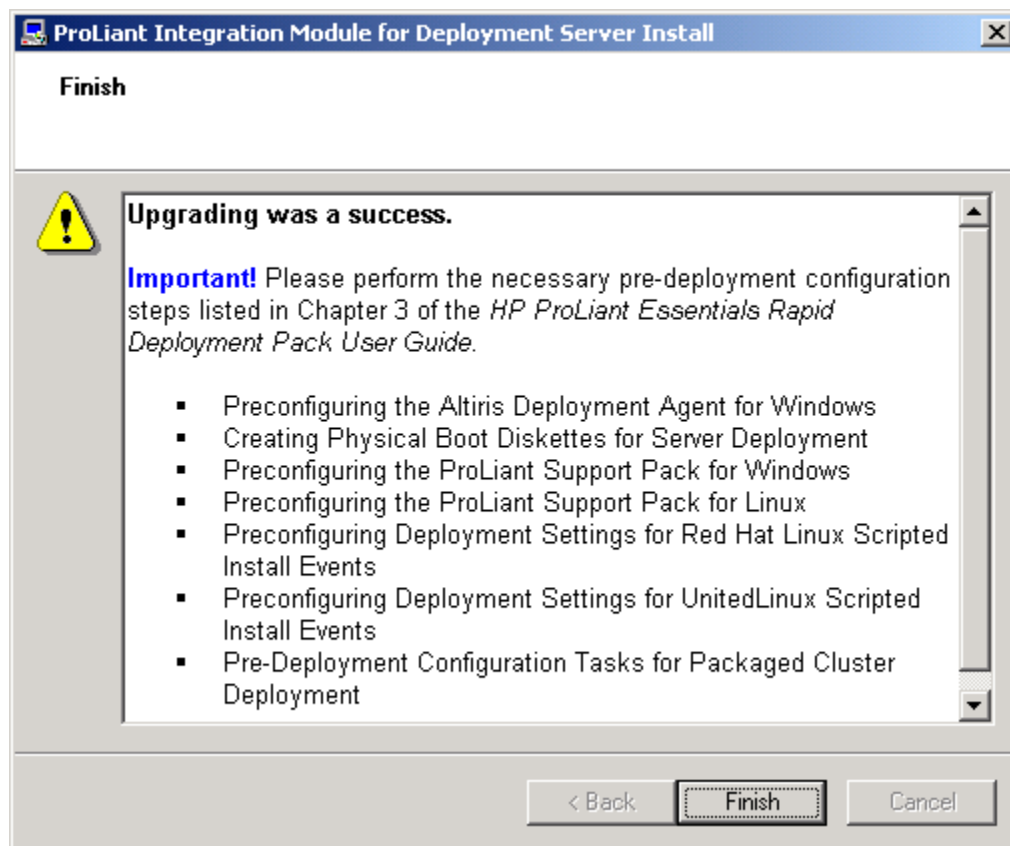


Figure 2-35: Final upgrade screen

Upgrade Complete

The Deployment Server upgrade is now complete. For any post-installation procedures that might be required to complete the upgrade, refer to “Upgrading” in Chapter 3.

Linux NFS Server Upgrade

The following sections describe how to upgrade the software currently installed on the NFS server.

Starting the Upgrade

To upgrade the Rapid Deployment Pack software on the Linux NFS server:

1. Log in as root.
2. Insert the Rapid Deployment Pack CD into the CD-ROM drive.
3. Mount the CD using the command:

```
mount /mnt/cdrom (Red Hat Linux)
or
mount /media/cdrom (UnitedLinux)
```

NOTE: If you are running GNOME or KDE, you must close the file manager window for the CD (and any other open connections to the CD) so the CD can be ejected to insert the Linux distribution CDs later in the process.

Upgrading the ProLiant Integration Module for NFS Server

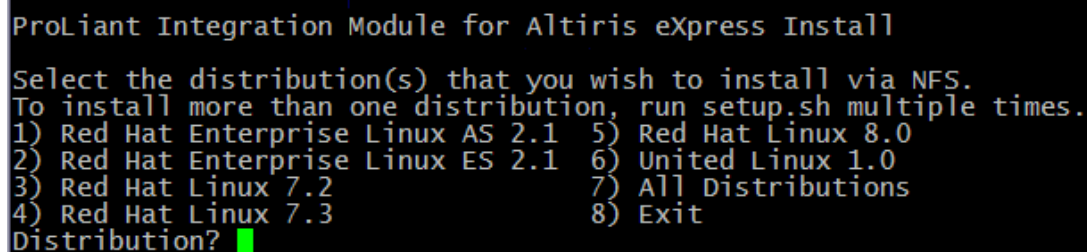
To upgrade the ProLiant Integration Module for NFS server:

1. Run the Linux NFS server setup script by entering the command:

```
/mnt/cdrom/pim-nfs/setup-pimnfs.sh (Red Hat Linux)
```

or

```
/media/cdrom/pim-nfs/setup-pimnfs.sh (UnitedLinux)
```
2. Enter the appropriate number for the distribution you want to install using NFS, then press the **Enter** key.



```
ProLiant Integration Module for Altiris eXpress Install
Select the distribution(s) that you wish to install via NFS.
To install more than one distribution, run setup.sh multiple times.
1) Red Hat Enterprise Linux AS 2.1  5) Red Hat Linux 8.0
2) Red Hat Enterprise Linux ES 2.1  6) United Linux 1.0
3) Red Hat Linux 7.2                7) All Distributions
4) Red Hat Linux 7.3                8) Exit
Distribution? █
```

Figure 2-36: Selecting distribution

3. If the Linux distribution CDs have already been copied to the Linux NFS server, you are asked if you want to copy the files again. If you select to copy the files again, remove the current CD from the CD-ROM drive when prompted, and insert the specified distribution CD.

IMPORTANT: The version and Update of the Red Hat Enterprise Linux CDs used during the installation of the NFS server and the Deployment Server must match.

4. Read the on-screen information, and press the **Enter** key to continue.

Upgrade Complete

The Linux NFS server upgrade is now complete. For any post-installation procedures that might be required to complete the upgrade, refer to the “Preconfiguring Deployment Settings for Red Hat Linux Scripted Install Jobs” section or the “Preconfiguring Deployment Settings for UnitedLinux Scripted Install Jobs” section in Chapter 3.

Manually Installing Operating System CDs

Refer to the following sections to manually install operating system CDs to the Deployment Server after the initial software installation process is completed.

Manually Installing Windows Operating System CDs

As part of the automatic installation process, the Windows operating system CDs were copied into the Deployment Server directory. If you chose not to copy the operating system CDs during the software installation, manually install the files into the Deployment Server directory from the operating system CDs or from the network.

To manually copy the Windows operating system CDs to the Deployment Server directory:

1. Locate the **.\deploy\cds** directory within the Deployment Server directory.
2. Select the **windows** directory. If the directory does not exist, create it.
3. Select the **w2k** directory (for Windows 2000) or the **wnet** directory (for Windows Server 2003). If this directory does not exist, create it.
4. Copy the **i386** directory from the operating system CD to the **w2k** or **wnet** directory.

NOTE: The provided Windows scripted install jobs rely on the existence of the w2k or wnet directory with the Windows operating system files located inside an i386 directory. If another directory name is selected for the Windows operating system files, modify the scripted install jobs appropriately to point to the alternate directory name. For information about modifying the scripted install jobs, refer to Chapter 5.

Manually Installing Linux Distribution CDs

As part of the NFS server installation process, the Linux distribution CDs were copied into the NFS server directory. If you chose not to copy the distribution CDs during the software installation, manually install the files into the NFS server directory from the distribution CDs or from the network.

To manually copy the Linux distribution CDs to the NFS server directory:

1. Locate the /usr/cpqrdp directory within the NFS server.
2. If a directory does not exist with the distribution shortcut name, create it. For example, /usr/cpqrdp/rhas21 is used for Red Hat Enterprise Linux AS 2.1.

IMPORTANT: The directory name must match the os variable name in the Deployment Server scripted install job and within the Kickstart file located at /usr/cpqrdp/ss.xxx/yy, where xxx is the version of the support files and yy is the distribution shortcut name.

3. Insert the Linux distribution CD into the NFS server CD-ROM drive.
4. Mount the CD-ROM drive:

```
mount /mnt/cdrom (Red Hat)
```

or

```
mount /media/cdrom (UnitedLinux)
```
5. Copy the contents of the distribution CD, including subdirectories, to the newly-created distribution directory.
6. Unmount the CD-ROM drive:

```
umount /mnt/cdrom (Red Hat)
```

or

```
umount /media/cdrom (UnitedLinux)
```
7. Repeat steps 3 through 6 to copy additional Linux distribution CDs.
8. Add the NFS server Linux distribution directory to /etc/exports with appropriate options. For example, /usr/cpqrdp/rhas21 *(ro,async) as a line in the exports file.
9. Execute the following command to cause the NFS service to read the new entry:

```
exportfs -r
```
10. For UnitedLinux, patch the UnitedLinux distribution files by running /usr/cpqrdp/ss.xxx/ul10/csp/ul10update.sh, where xxx is the version of the support files.

NOTE: The Linux distribution CD containing the RedHat/RPMS directory is required. However, all Linux distribution CDs may not be needed.

Manually Installing Red Hat Enterprise Linux Boot Files

With Red Hat Enterprise Linux support, the ProLiant Integration Module for Deployment Server installation prompts for Red Hat distribution CDs from which to copy several Linux boot files. If you chose to not copy these files during the software installation, manually install these files into the Deployment Server directory.

The ProLiant Integration Module for Deployment Server installation process does not distinguish between Update distributions of Red Hat Enterprise Linux 2.1 and Red Hat Enterprise Linux AS 2.1 initial release, previously known as Red Hat Advanced Server 2.1. Rapid Deployment Pack provides a custom boot file on the Rapid Deployment Pack CD, `initrd.img` for Red Hat Enterprise Linux 2.1 initial release.

Procedures are provided for copying both the Update distribution CD or the initial release distribution CD.

IMPORTANT: The copied boot files must match the distribution version copied during the “ProLiant Integration Module for NFS Server Installation” or during the “Manually Installing Linux Distribution CDs.”

NOTE: Linux boot files for all other Linux distributions are provided on the Rapid Deployment CD and installed during the ProLiant Integration Module for Deployment Server installation.

Red Hat Enterprise Linux Update Distributions

To manually copy the Linux Update boot files to the Deployment Server directory:

1. On the Deployment Server, locate the `.deploy\cds\compaq\ss.xxx\yy` directory, where `xxx` is the version of the support files, and `yy` is the operating system shortcut name, such as `rhas21` for Red Hat Enterprise Linux AS or `rhes21` for Red Hat Enterprise Linux ES. If this directory does not exist, create it.
2. Copy the following files into the operating system directory from Red Hat Linux CD #1.
 - `loadlin` (from `D:/dosutils` to `.deploy\compaq\ss.xxx\yy\dosutils`)
 - `vmlinuz` (from `D:/images/pxeboot` to `.deploy\compaq\ss.xxx\yy\ dosutils\autoboot`)
 - `initrd-everything.img` (from `D:/images/pxeboot` to `.deploy\compaq\ss.xxx\yy\dosutils\autoboot.`)where `D:` is the drive letter of your CD-ROM drive.

IMPORTANT: Rename the copied `initrd-everything.img` file to `initrd.img`.

Red Hat Enterprise Linux AS Initial Release Distribution

To manually copy the Linux initial release boot files to the Deployment Server directory:

1. On the Deployment Server, locate the `.deploy\cds\compaq\ss.xxx\yy` directory, where `xxx` is the version of the support files, and `yy` is the operating system shortcut name, such as `rhas21` Red Hat Enterprise Linux AS. If this directory does not exist, create it.
2. Locate the source boot file directory, `.deploy\cds\compaq\ss.xxx\rhas21.base`.
3. Copy the `rhas21.base` directory contents to the `.deploy\cds\compaq\ss.xxx\yy` directory.
4. Verify the following files are in the indicated locations:
 - `loadlin` in `.deploy\compaq\ss.xxx\yy\dosutils`
 - `vmlinuz` in `.deploy\compaq\ss.xxx\yy\dosutils\autoboot`
 - `initrd.img` in `.deploy\compaq\ss.xxx\yy\dosutils\autoboot`

Pre-Deployment Configuration

Overview

Before using the Rapid Deployment Pack to deploy servers, some configuration modifications are necessary to ensure optimal performance of the Deployment Server.

For the first-time installation of the Rapid Deployment Pack, refer to the sections listed in the “First-Time Installation” section of this chapter. After upgrading to a new version of the Rapid Deployment Pack, refer to the sections listed in the “Upgrading” section. Depending on the configuration, all of the steps listed in these sections might not be necessary.

First-Time Installation

For the first-time installation of the Rapid Deployment Pack, refer to following sections:

- Configuring ProLiant BL Server Enclosures
- Configuring PXE to Automatically Process New Computers
- Synchronizing the Deployment Server Console Name with the Windows Name
- Modifying the Primary Lookup Key
- Preconfiguring the Altiris Deployment Agent for Windows
- Creating Physical Boot Diskettes for Server Deployment
- Preconfiguring the ProLiant Support Pack for Windows
- Preconfiguring the ProLiant Support Pack for Linux
- Preconfiguring Deployment Settings for Red Hat Linux Scripted Install Jobs
- Preconfiguring Deployment Settings for UnitedLinux Scripted Install Jobs
- Pre-Deployment Configuration Tasks for Packaged Cluster Deployment

Upgrading

After upgrading to a new Rapid Deployment Pack version, refer to the following sections:

- Preconfiguring the Altiris Deployment Agent for Windows
- Preconfiguring the ProLiant Support Pack for Windows
- Preconfiguring the ProLiant Support Pack for Linux
- Preconfiguring Deployment Settings for Red Hat Linux Scripted Install Jobs
- Preconfiguring Deployment Settings for UnitedLinux Scripted Install Jobs
- Pre-Deployment Configuration Tasks for Packaged Cluster Deployment

Configuring ProLiant BL Server Enclosures

The Physical Devices view in the Deployment Server Console displays the rack name and enclosure name for each ProLiant BL server. The default name for the server rack is `UnnamedRack` and the default name for the BL e-Class server enclosure is the MAC address of the NIC associated with the Integrated Administrator.

Setting the rack name and enclosure name is recommended before the first server in an enclosure connects to the Deployment Server. After ProLiant BL servers are powered up for the first time and the rack and enclosure names are recorded in the Deployment Server database, the servers must be rebooted for new rack and enclosure names to be discovered. Also, the default-named rack and enclosure must be manually deleted from the console.

ProLiant BL e-Class Servers

If the Integrated Administrator port is connected to a network with DHCP, complete the following steps to change the rack and enclosure names:

1. Browse to the DNS name located on the tag attached to the interconnect tray on the enclosure.
2. Log in to the Integrated Administrator, using the user name and password located on the tag.

- At the **Enclosure Information** screen, change the **Rack Name** and **Enclosure Name**, and then click **Apply**.

Compaq ProLiant BL e-Class Integrated Administrator

Enclosure Name: enclosure
Current User: Administrator

ProLiant BL e-Class
INTEGRATED ADMINISTRATOR

Enclosure Information

Click the Apply button for all changes to take effect.

Status

Enclosure Name:
 Rack Name:
 Enclosure Status: OK
 Fan Status: Redundant Fans
 Fan #1: OK (40%)
 Fan #2: Standby
 Fan #3: OK (40%)
 Fan #4: Standby
 Fan Part Number: 253079-001
 Chassis Temperature: OK (82°F / 28°C)
 Fan Exhaust Temperature: OK (84°F / 29°C)
 Blade Bay Temperature: OK (N/A)

Power

Power Subsystem Status: Redundant Power
 Total Capacity: 1200 Watts
 Power Supply #1 Status: OK
 AC Input #1 Status: OK
 Power Supply #2 Status: OK
 AC Input #2 Status: OK
 Power Supply Part Number: XXXXXX-001

Apply Cancel

Figure 3-1: Configuring a ProLiant BL e-Class server enclosure

IMPORTANT: Do not use the same enclosure name for multiple enclosures. Using the same enclosure name will result in multiple blades being displayed in each bay for an enclosure and duplicate default server names.

If the Integrated Administrator port is not connected to a network with DHCP, refer to the *Integrated Administrator User Guide* for details about how to access the Integrated Administrator using other methods, such as the serial console.

After configuring the enclosure, install the ProLiant BL e-Class servers into the enclosure by following the instructions provided with the server hardware.

IMPORTANT: The following hardware documentation is available:

- For information on the Integrated Administrator, refer to the *Integrated Administrator User Guide* on the documentation CD shipped with the enclosure.
- For information on the ProLiant BL e-Class servers, refer to the *ProLiant BL e-Class System Setup and Installation Guide* on the documentation CD shipped with the server.

ProLiant BL p-Class Servers

To configure a ProLiant p-Class enclosure, at least one server blade must be placed in the enclosure. The blade should not be powered on until the desired rack and enclosure names are set using the iLO interface. Otherwise the blade will boot to PXE (if enabled) and the default rack and enclosure name will be placed in the Deployment Server database.

After ProLiant BL servers are powered up for the first time and the rack and enclosure names are recorded in the Deployment Server database, the servers must be rebooted for new rack and enclosure names to be discovered. Also, the default named enclosure and rack must be manually deleted from the console.

If the Integrated Lights-Out (iLO) port is connected to the network with DHCP services available, complete the following steps to change the rack and enclosure names:

NOTE: Configure at least one server blade in each enclosure to be sure that all racks and enclosures are properly configured.

1. Browse to the DNS name located on the tag attached to the ProLiant BL p-Class server.
2. Log on to iLO, using the credentials on the tag.

NOTE: Users that do not have the Administrator ProLiant BL p-Class privilege will only be able to view the settings.

3. Click the **BL p-Class** tab.

The screenshot displays the HP iLO BL p-Class configuration interface. At the top, the HP iLO logo is visible, along with the text "INTEGRATED LIGHTS-OUT" and "invent". The user is logged in as "Administrator" with the iLO Name "ILO8J19JTN8089E". The interface has a navigation bar with tabs: "System Status", "Remote Console", "Virtual Devices", "Administration", and "BL p-Class". The "BL p-Class" tab is selected. On the left, a sidebar lists various settings: "Rack Settings", "Rack Topology", "Server Blade Mgt. Module", "Power Mgt. Module", and "Redundant Power Mgt. Module". The main content area is titled "Rack Settings" and contains two sections: "Rack Information" and "Power On Control".

Rack Information

Rack Name	North America	Rack Serial Number	2098DWA94E1
Enclosure Name	Accounting	Enclosure Serial Number	DY1962W40E88
Bay Name	Accounts Payable	Blade Serial Number	68D0IYE10062
Bay 8			

Power On Control

Power Source: ☒ Rack Provides Power ☐ Facility Provides 48V

Enable Automatic Power On: ☒ Yes ☐ No

Enable Rack Alert Logging (IML): ☒ Yes ☐ No

Apply

Figure 3-2: Configuring a ProLiant BL p-Class server enclosure

4. Enter information in the **Rack Name** and **Enclosure Name** fields to meet specific configuration needs.

IMPORTANT: Do not use the same enclosure name for multiple enclosures. Using the same enclosure name will result in multiple blades being displayed in each bay for an enclosure and duplicate default server names.

5. After the parameter changes have been made, click **Apply** to complete the changes.

For more information about iLO, refer to the *HP Integrated Lights-Out User Guide*.

If the iLO port is not connected to a network with DHCP services available, refer to the *HP ProLiant BL20p User Guide* for details about accessing iLO from the front panel of the server blade.

Configuring PXE to Automatically Process New Computers

By default, when a new computer (a computer not listed in the Deployment Server database) performs a PXE boot, the PXE server sends the computer the PXE menu and waits for manual selection of the Initial Deployment option. This behavior was designed for desktops and is not practical for servers, especially blade servers that do not have a local keyboard, mouse, and display.

To configure the PXE server to automatically select the Initial Deployment menu item and continue without user interaction:

1. From the Deployment Server Console menu, select **Tools>PXE Configuration Utility**.
2. Select the PXE server from the drop-down list, then click **OK**.
3. Click **Altiris Bootworks (Initial Deployment)**.

- Click **Edit** to display the **Menu Item Properties** window.

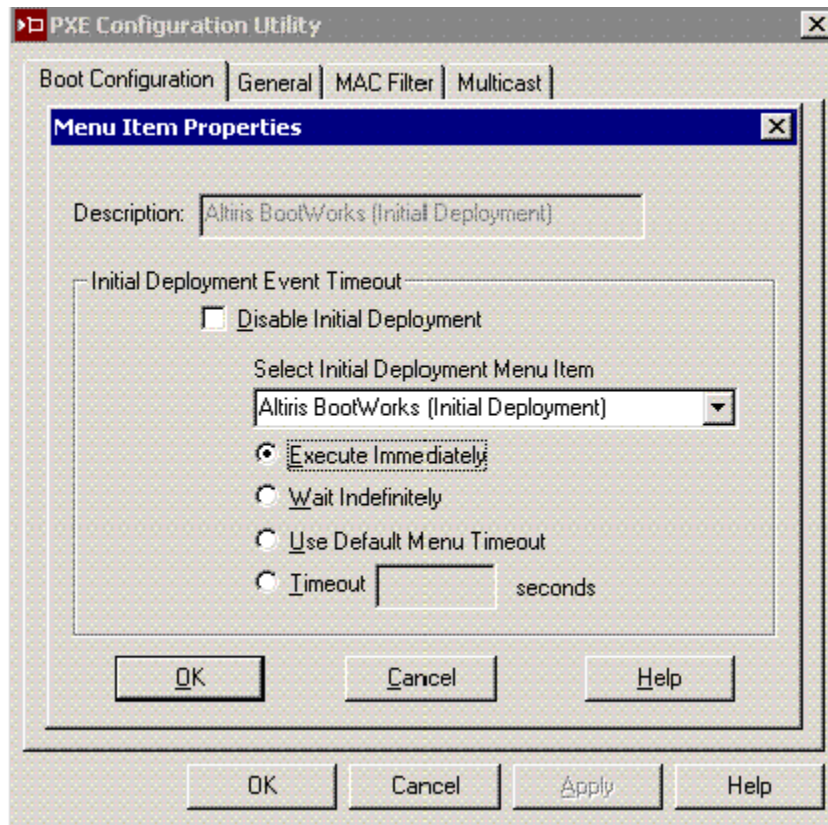


Figure 3-3: Configuring the PXE server

- Select **Execute Immediately**.
- Click **OK** to close both windows.



CAUTION: Do **not** reorder the boot menu located on the **Menu Items** list on the **Boot Configuration** tab. The Altiris eXpress Deployment Solution selects the top menu item as its default action when there is no task for a computer to perform. Moving another selection, such as **Initial Deploy**, to the top of the list will cause the server to never boot locally, and to cycle into an endless loop of reboots.

Synchronizing the Deployment Server Console Name with the Windows Name

Altiris enables an “alias,” or a name different than that used by the operating system or NETBIOS, to be displayed in the Deployment Server Console. You can select to have the Deployment Server Console always reflect the same name that is used by the operating system.

To synchronize the Deployment Server Console and operating system names:

1. At the Deployment Server Console window, select **Tools>Options**. The **Program Options** window displays.
2. Click the **Global** tab.

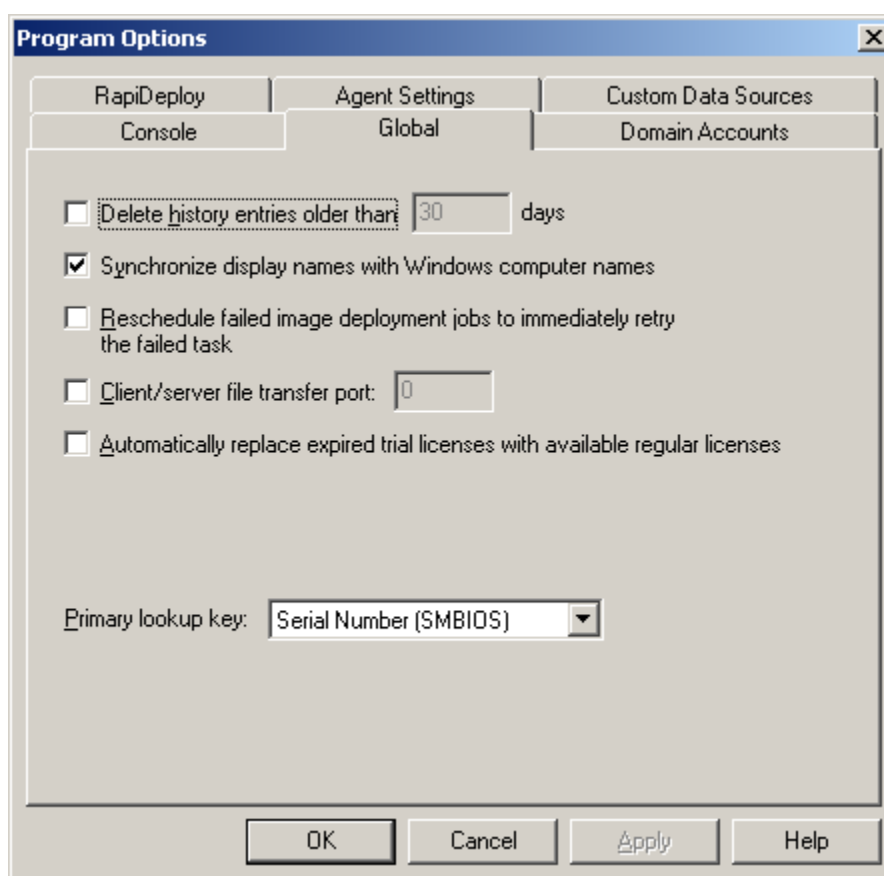


Figure 3-4: Synchronizing names

3. Select **Synchronize display names with Windows computer names**.
4. Click **OK**.

5. Click **Yes** when prompted to restart the control servers.

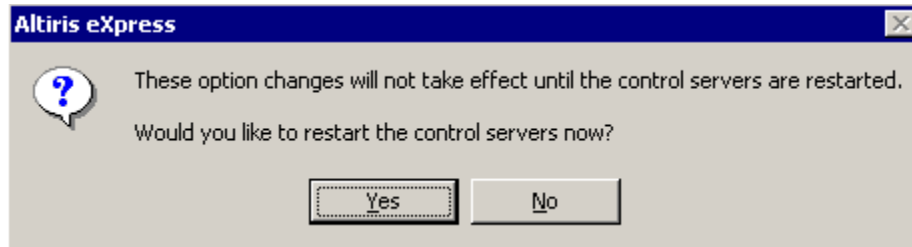


Figure 3-5: Restarting control servers

NOTE: This capability is currently only available for Windows servers running the Altiris Deployment Agent for Windows.

Modifying the Primary Lookup Key

The Altiris eXpress Deployment Solution uses the primary lookup key to determine if a server is already in the database.

HP recommends setting the primary lookup key as the serial number. Setting the primary lookup key as the server serial number has two benefits:

- Enabling servers to be imported by their serial number, instead of difficult to determine keys, such as the MAC address.
- Avoiding duplicate database entries that might occur with servers with two or more NICs.

To change the primary lookup key to the serial number:

1. At the Deployment Server Console window, select **Tools>Options**. The **Program Options** window displays.
2. Click the **Global** tab.

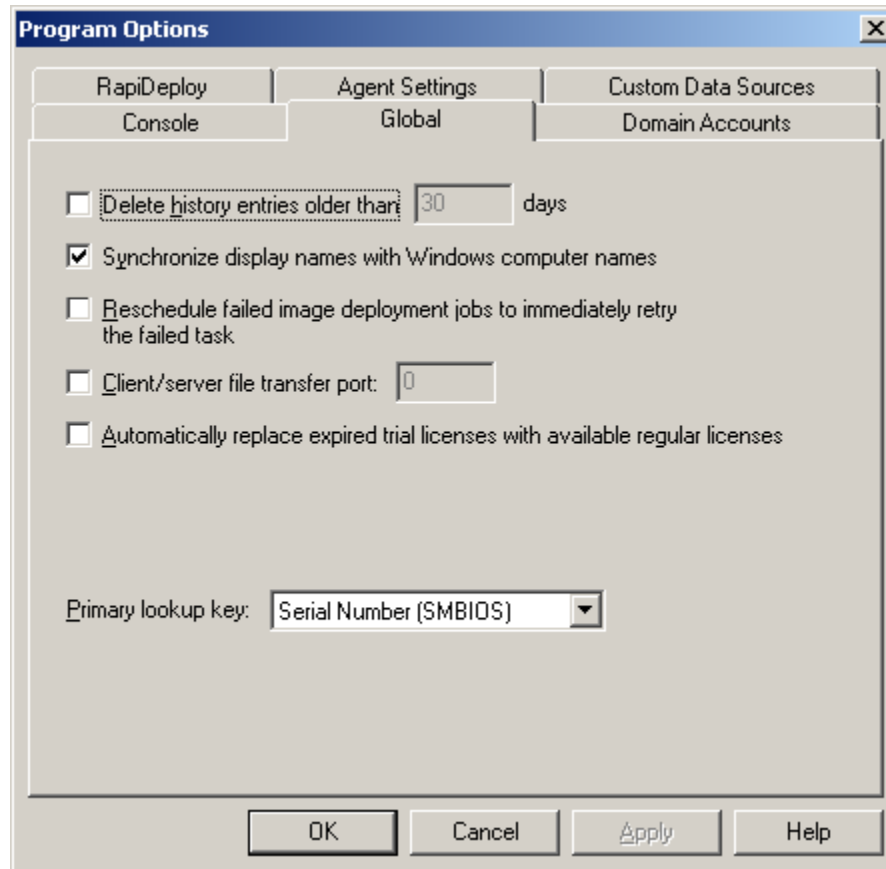


Figure 3-6: Modifying Primary lookup key

3. Click the **Primary lookup key** drop-down tab.
4. Scroll up and select **Serial Number (SMBIOS)**.
5. Click **OK**.
6. Click **Yes** when prompted to restart the control servers.

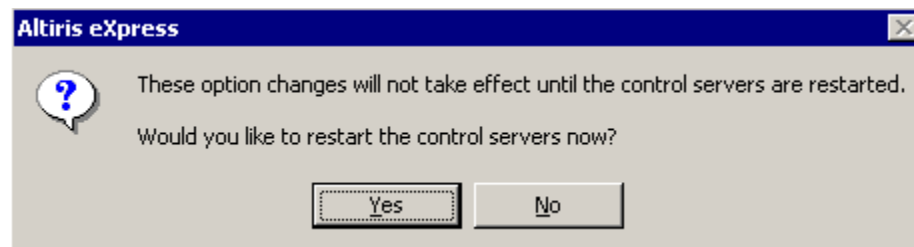


Figure 3-7: Restarting control servers

Preconfiguring the Altiris Deployment Agent for Windows

The Altiris Deployment Agent is a service that enables a server to be managed by the Deployment Server. It provides the capability to redeploy the server, perform pre- and post-imaging configurations, and process various commands, such as software installation.

By preconfiguring the default settings, all agents installed as part of the provided Windows scripted install jobs will have the consistent settings.

The provided Windows scripted install jobs use the `aclient.inp` file, located in the Deployment Server root directory, for agent settings. This is independent of the Remote Client Installer settings, established from **Tools>Options>Agent Settings**.

1. From a text editor, open the `aclient.inp` file, located in the Deployment Server root directory.

NOTE: By default, the Deployment Server root directory is
`.\program files\altiris\express\deployment server`.

2. Select the option to force applications to close when the server needs to reboot, ensuring that jobs will not fail if the server must be rebooted, by changing the following line:

```
; ForceReboot=No  
  
to  
  
ForceReboot=Yes
```

3. Modify the Bootworks disk prompting behavior by changing the following line:

```
; BootDiskMessageUsage=4  
  
to  
  
BootDiskMessageUsage=0
```

If boot diskettes are used instead of PXE, and a configuration task is issued to a computer when a diskette is not in the diskette drive, a prompt displays instructing you to insert a diskette. If this occurs when you are not logged in to the server, you must log in and close the prompt before the job can continue. By selecting to never be prompted for a boot diskette, the server reboots to the normal operating system if a boot diskette is not inserted in the server when required.

4. Select the option to synchronize the target server time with the Deployment Server time by changing the following line:

```
; SynchTimeWithServer=No  
  
to  
  
SynchTimeWithServer=Yes
```

5. Save the file and close the text editor.

Creating Physical Boot Diskettes for Server Deployment

If PXE will not be used in the deployment infrastructure, one or more physical boot diskettes need to be created. These diskettes enable the target servers to communicate with the Deployment Server.

To create an MS-DOS boot diskette using the Boot Disk Creator within Altiris:

1. From the Deployment Server Console menu, select **Tools>Boot Disk Creator**. The **Boot Disk Creator** application opens.

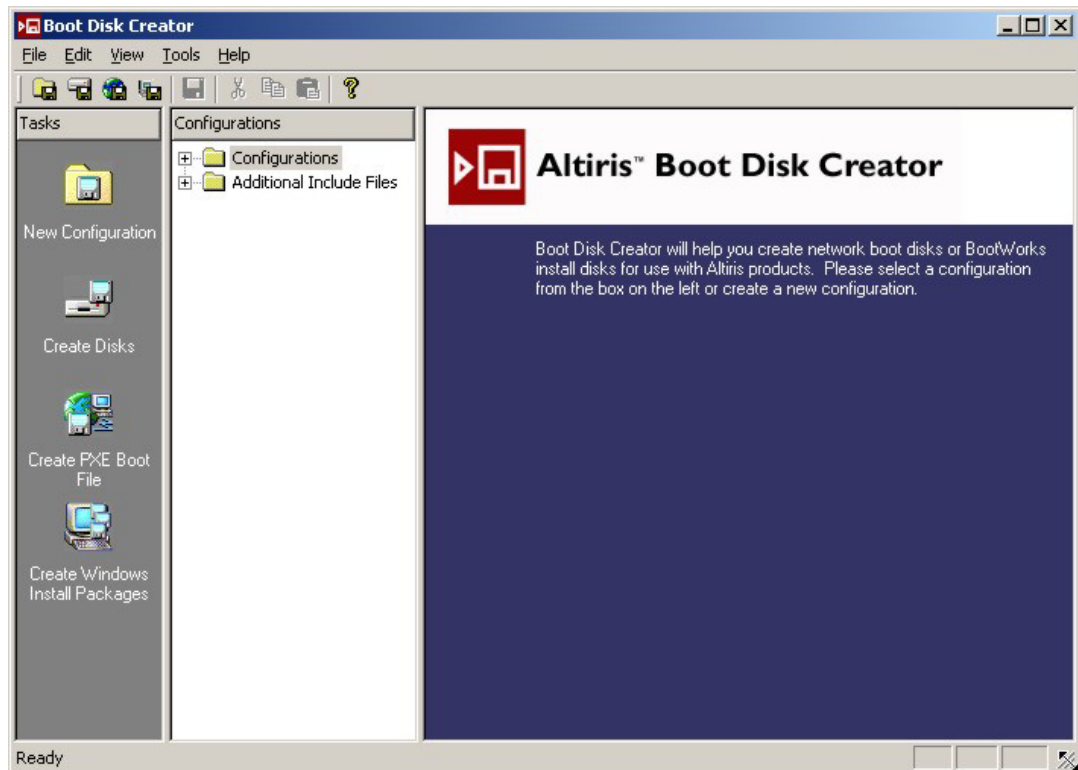


Figure 3-8: Creating boot disks

2. Click the **New Configuration** icon in the **Tasks** pane on the left. Enter a name for the configuration, such as **DOS Boot Disk**, and a description in the window that displays, then click **Next**.

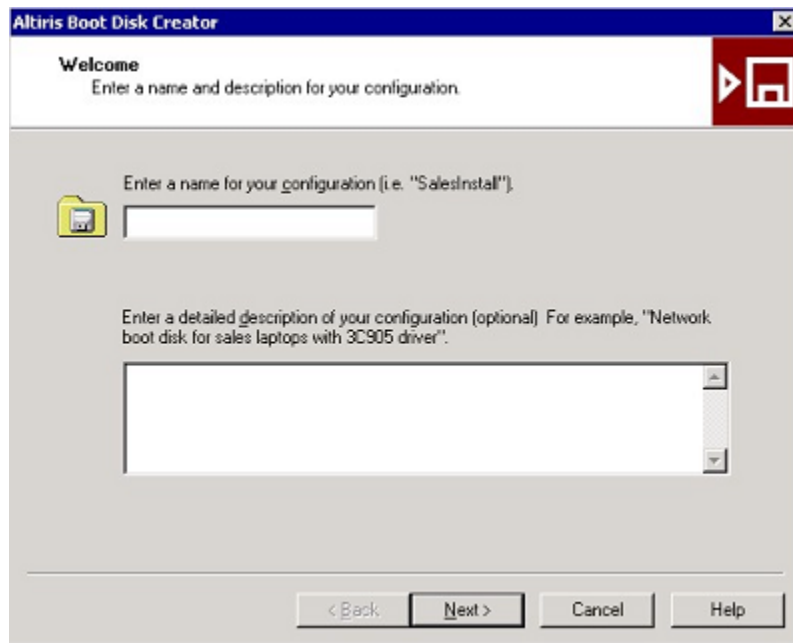


Figure 3-9: Naming the configuration

3. Select **BootWorks boot disk** from the available choices, select **Run the Initial Deployment for computers not already in the database**, and then click **Next**.

NOTE: The Initial Deployment selection can be used on boot diskettes even when the computer is a managed computer, and Initial Deployment will only run the first time a computer displays in the Deployment Server.

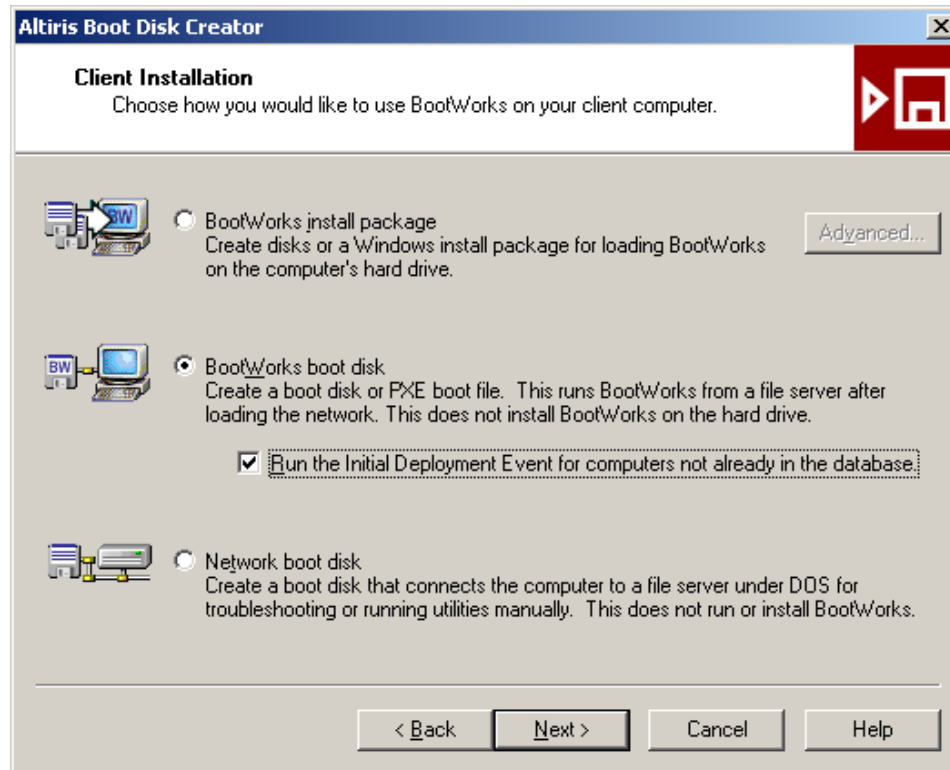


Figure 3-10: Creating a boot disk

- Click **Next** to accept the default selection of **Microsoft Windows**.

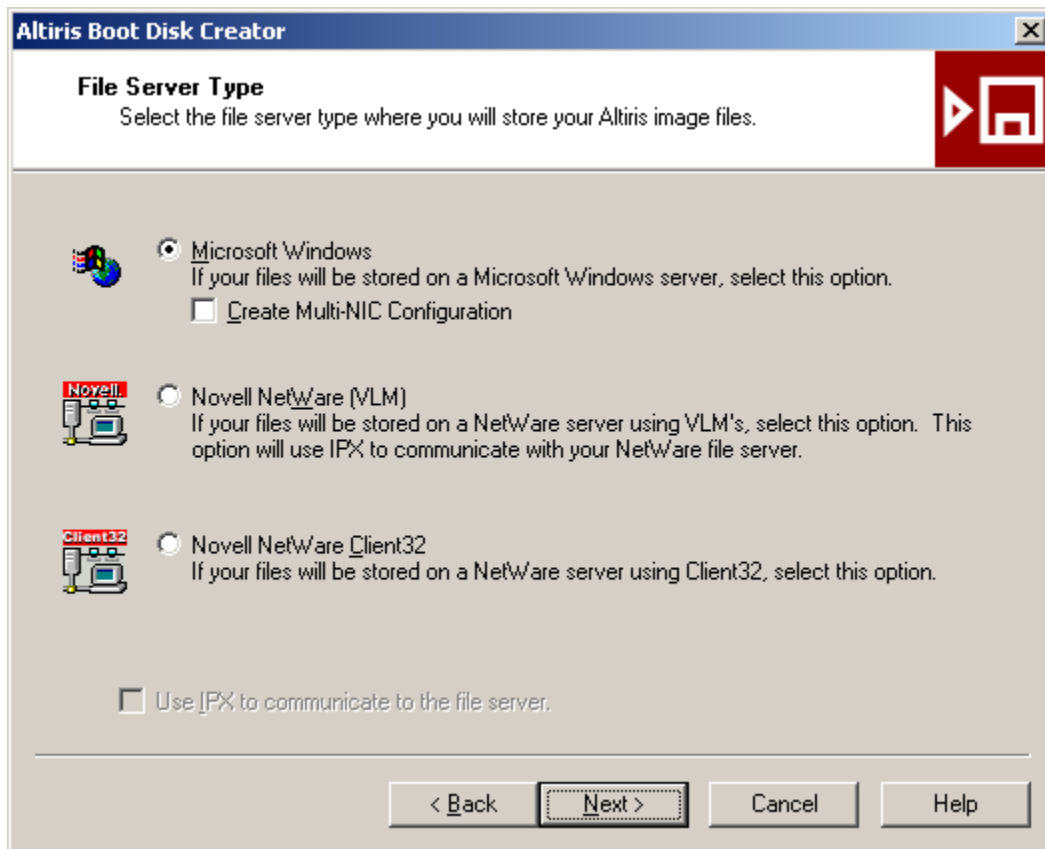


Figure 3-11: Selecting the file server type

5. Deselect **Use Intel universal NIC driver for Preboot Execution Environment (PXE)**, select the appropriate driver for the target server NIC, and click **Next**.

For example, for Intel-based NICs, select **Compaq Ethernet or Fast Ethernet NIC**, or for Broadcom-based NICs, select **Compaq NC67xx/NC77xx Gigabit Ethernet**.

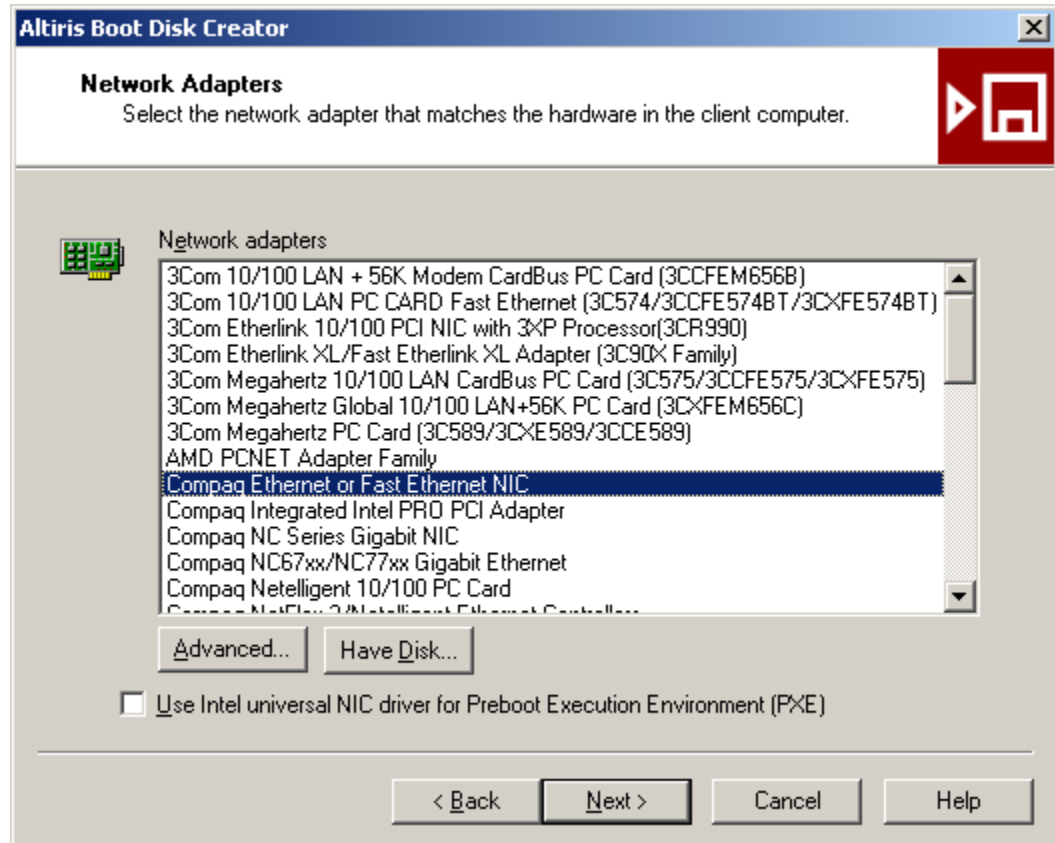
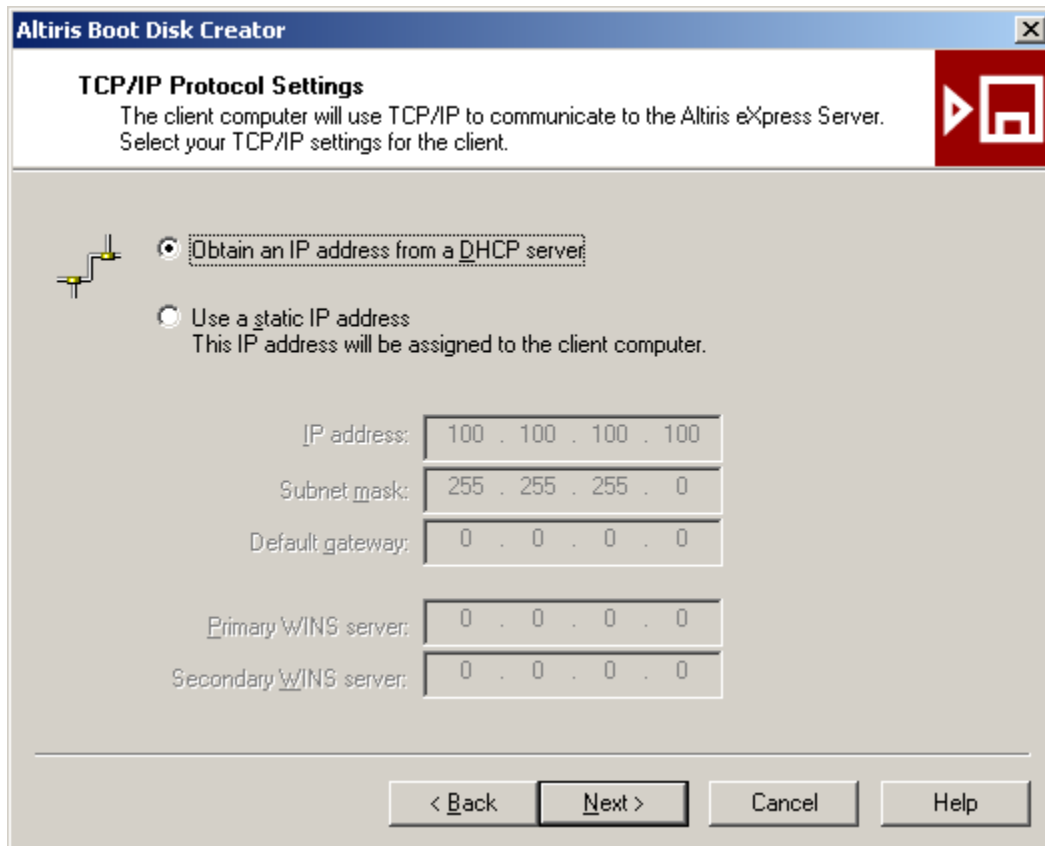


Figure 3-12: Selecting the NIC driver

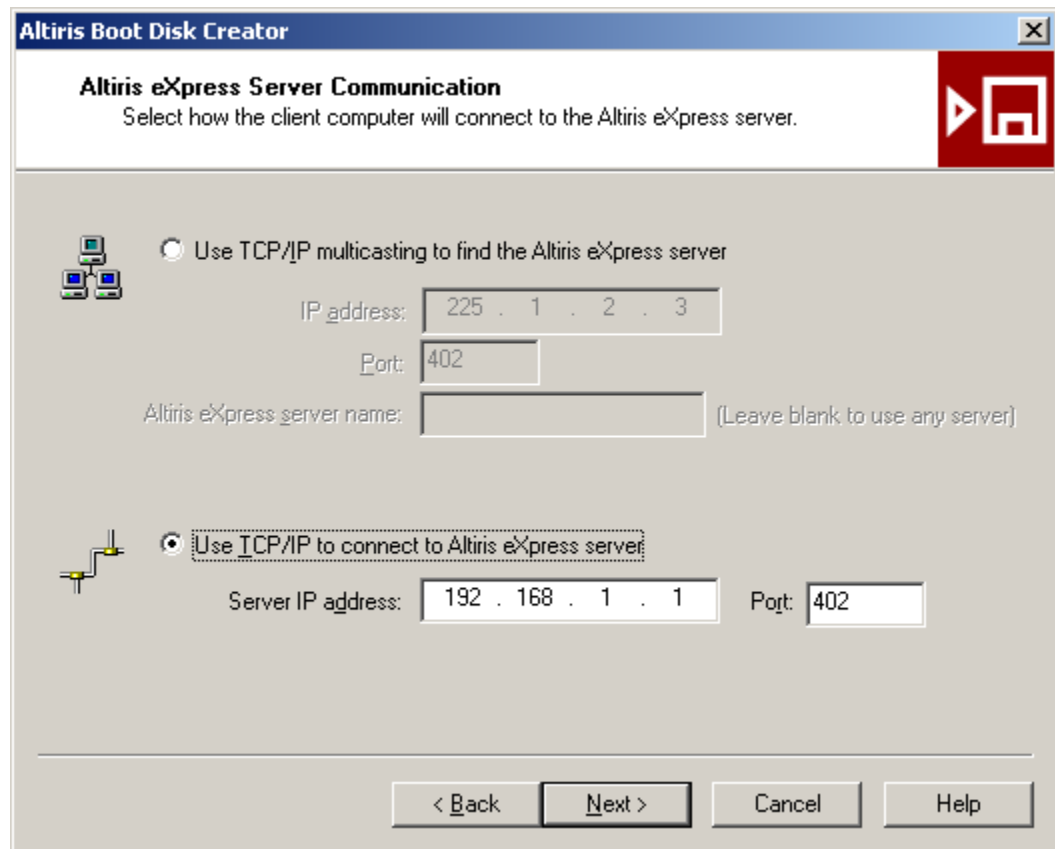
- Click **Next** to accept the default IP settings. If static IP addresses are required, insert the appropriate information here.



The image shows a screenshot of the 'Altiris Boot Disk Creator' window, specifically the 'TCP/IP Protocol Settings' tab. The window has a title bar with the text 'Altiris Boot Disk Creator' and a close button. Below the title bar, the tab is labeled 'TCP/IP Protocol Settings'. The main text area says: 'The client computer will use TCP/IP to communicate to the Altiris eXpress Server. Select your TCP/IP settings for the client.' There are two radio button options: 'Obtain an IP address from a DHCP server' (which is selected) and 'Use a static IP address' (with a subtext 'This IP address will be assigned to the client computer.'). Below these options are five text input fields for static IP configuration: 'IP address:' (100 . 100 . 100 . 100), 'Subnet mask:' (255 . 255 . 255 . 0), 'Default gateway:' (0 . 0 . 0 . 0), 'Primary WINS server:' (0 . 0 . 0 . 0), and 'Secondary WINS server:' (0 . 0 . 0 . 0). At the bottom right, there are four buttons: '< Back', 'Next >', 'Cancel', and 'Help'.

Figure 3-13: Selecting TCP/IP settings

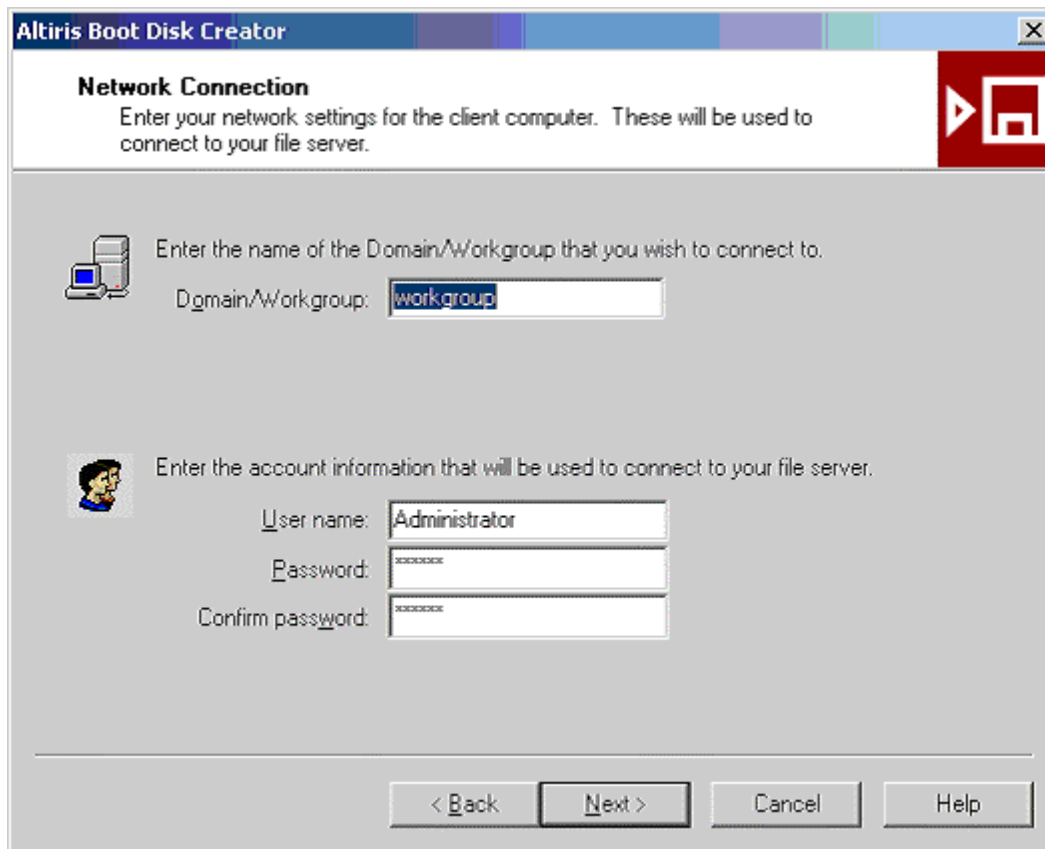
- Click **Next** to accept the default method of connecting to the Deployment Server.



The image shows a Windows-style dialog box titled "Altiris Boot Disk Creator" with a subtitle "Altiris eXpress Server Communication". The subtitle text reads: "Select how the client computer will connect to the Altiris eXpress server." There is a red square icon with a white play button and a square symbol in the top right corner. The dialog has two radio button options. The first option, "Use TCP/IP multicasting to find the Altiris eXpress server", is accompanied by an icon of three computer monitors. It has input fields for "IP address:" (containing "225 . 1 . 2 . 3"), "Port:" (containing "402"), and "Altiris eXpress server name:" (which is empty, with a note "(Leave blank to use any server)"). The second option, "Use TCP/IP to connect to Altiris eXpress server", is accompanied by an icon of a network cable and is selected with a radio button. It has input fields for "Server IP address:" (containing "192 . 168 . 1 . 1") and "Port:" (containing "402"). At the bottom, there are four buttons: "< Back", "Next >", "Cancel", and "Help".

Figure 3-14: Selecting server connection method

- Click **Next** to accept the default workgroup name and login account settings.



The image shows a screenshot of the 'Altiris Boot Disk Creator' application window. The title bar reads 'Altiris Boot Disk Creator'. The main window has a header section titled 'Network Connection' with a subtitle: 'Enter your network settings for the client computer. These will be used to connect to your file server.' To the right of the header is a red button with a white play icon and a square icon. Below the header, there are two sections. The first section is titled 'Enter the name of the Domain/Workgroup that you wish to connect to.' and contains a text box labeled 'Domain/Workgroup:' with the value 'workgroup' entered. The second section is titled 'Enter the account information that will be used to connect to your file server.' and contains three text boxes: 'User name:' with 'Administrator' entered, 'Password:' with '*****' entered, and 'Confirm password:' with '*****' entered. At the bottom of the window are four buttons: '< Back', 'Next >', 'Cancel', and 'Help'.

Figure 3-15: Entering network settings

9. Click **Next** to accept the default drive mappings settings.

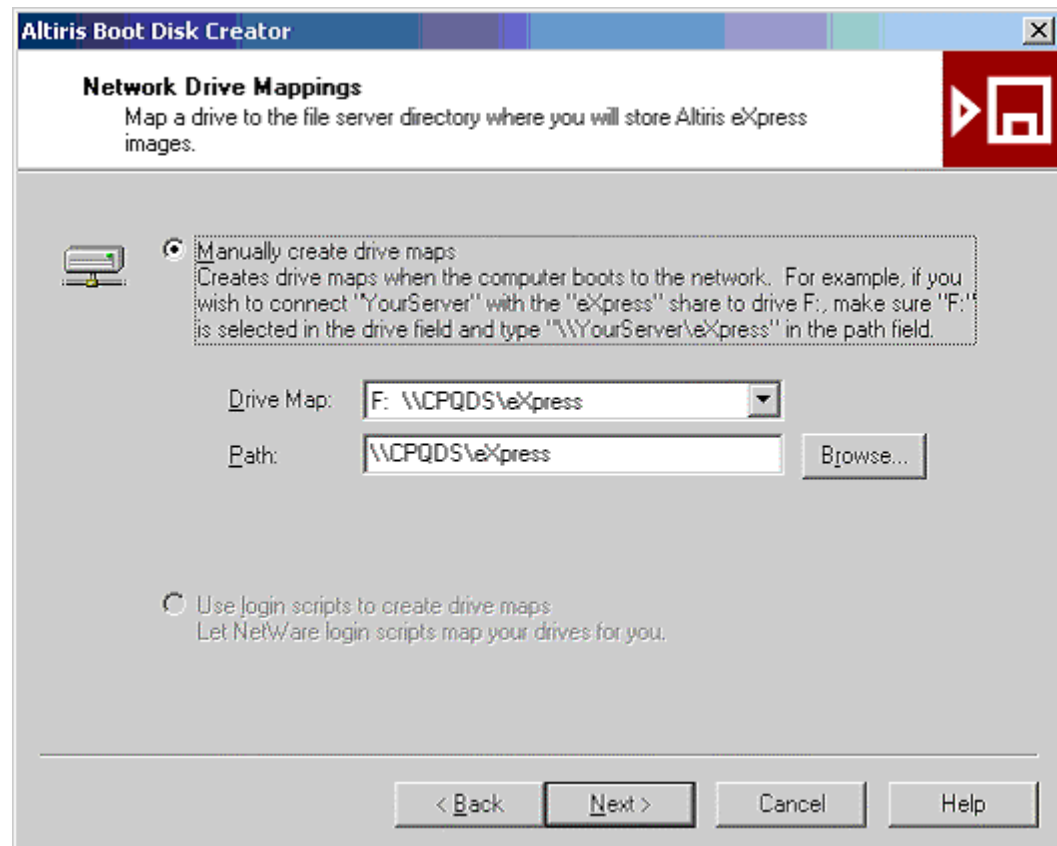


Figure 3-16: Mapping drive

10. Click **Finish** to create the configuration.

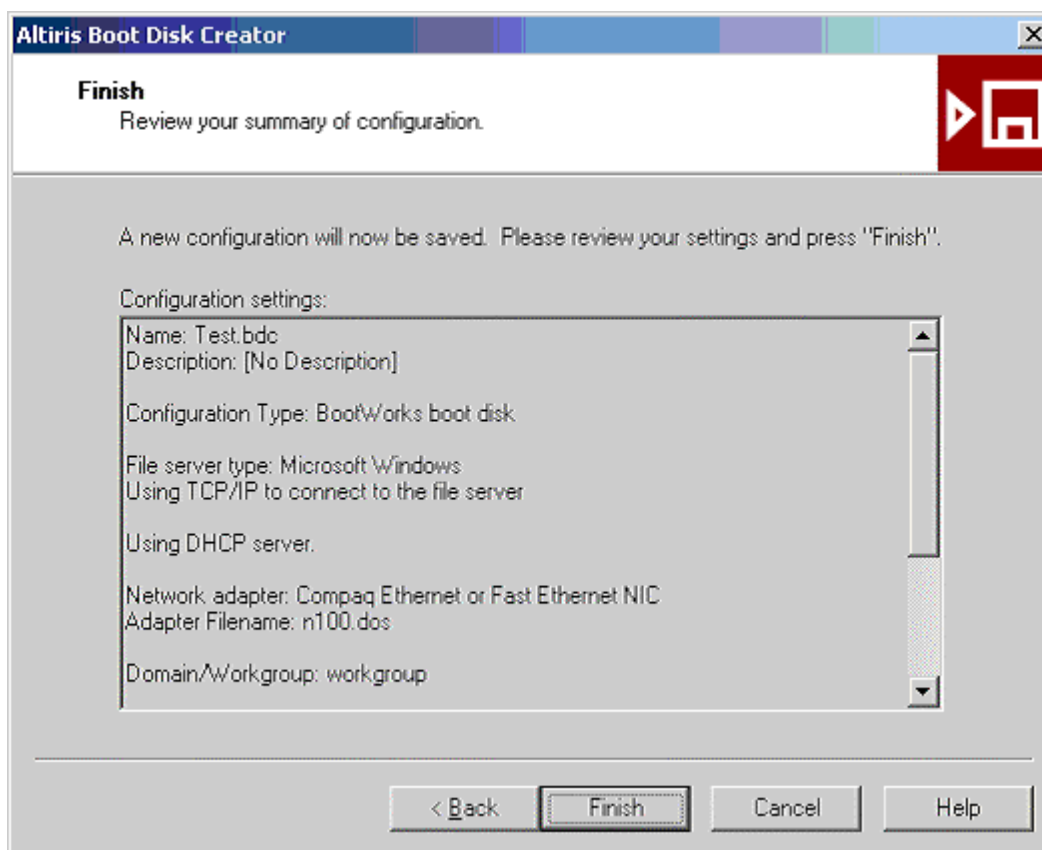


Figure 3-17: Saving the configuration

11. When prompted to select a media type, select **Create floppy disk sets**, and click **OK**.

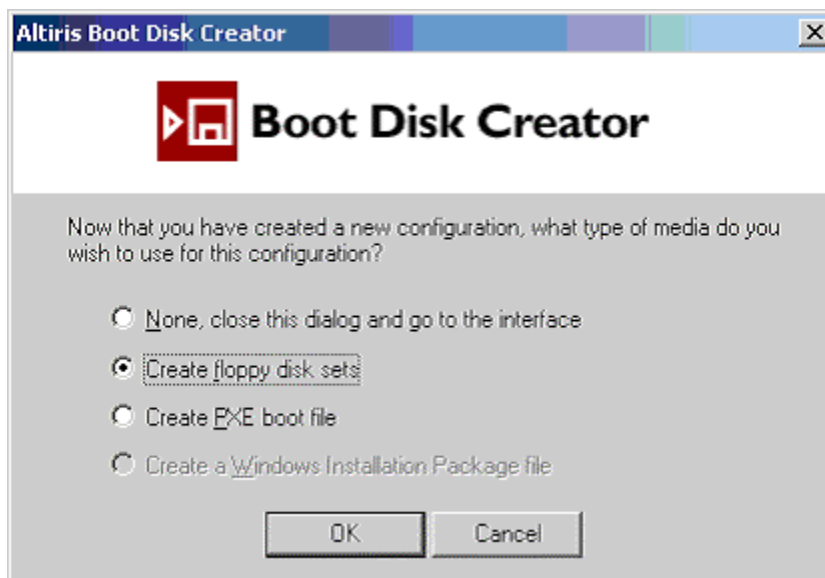


Figure 3-18: Selecting media type

12. Insert a diskette into the diskette drive, select the number of boot disk sets to create, then click **Next**.

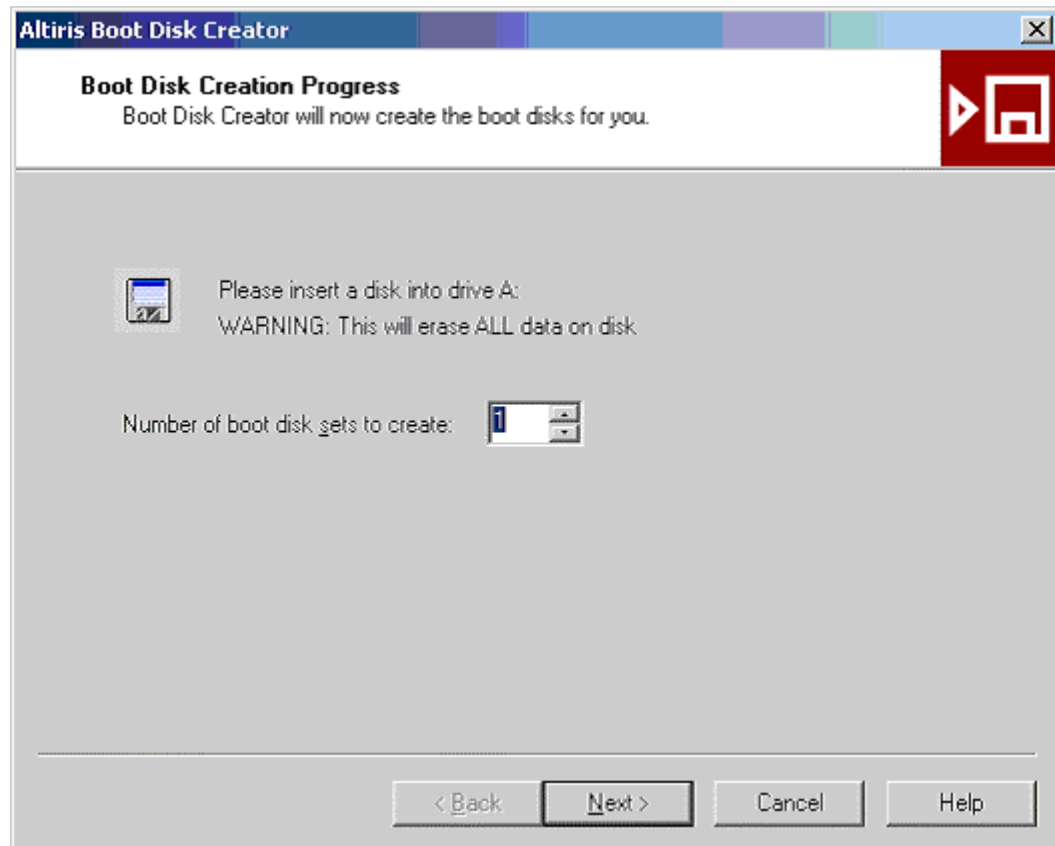


Figure 3-19: Selecting the number of disk sets

The Boot Disk Creator begins creating the disks.

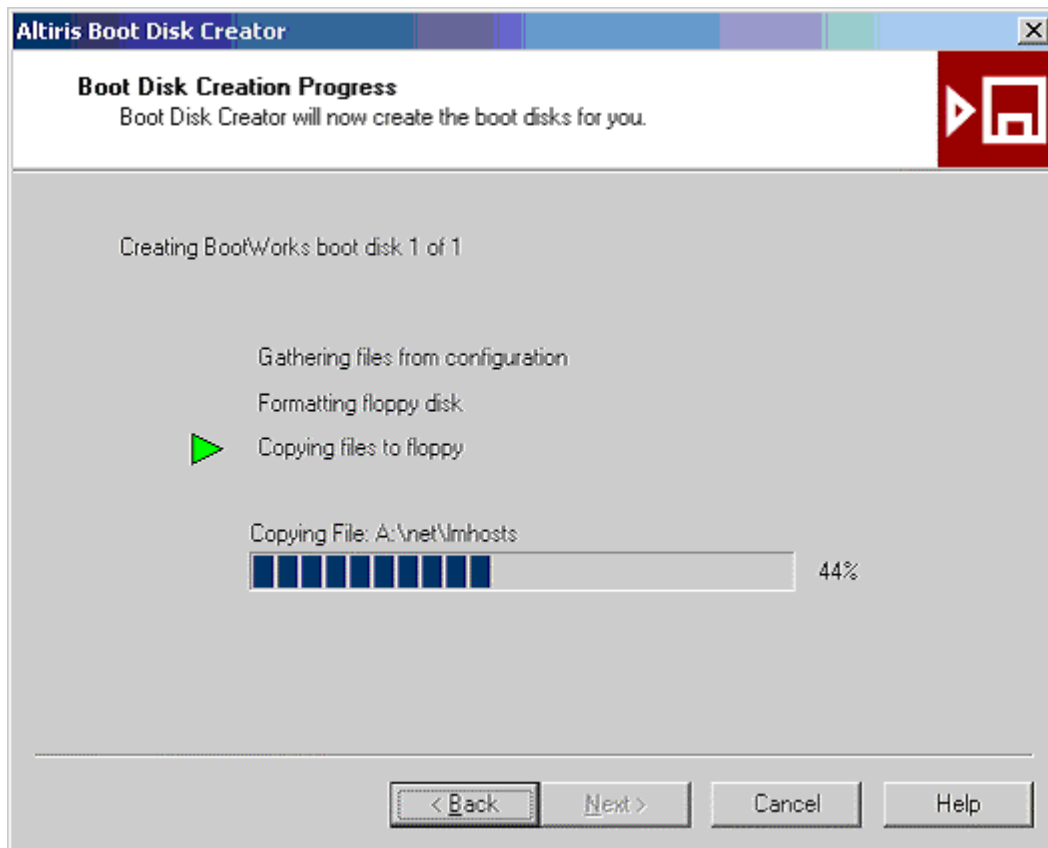


Figure 3-20: Creating the boot disks

13. When the diskettes are complete, click **Close**.

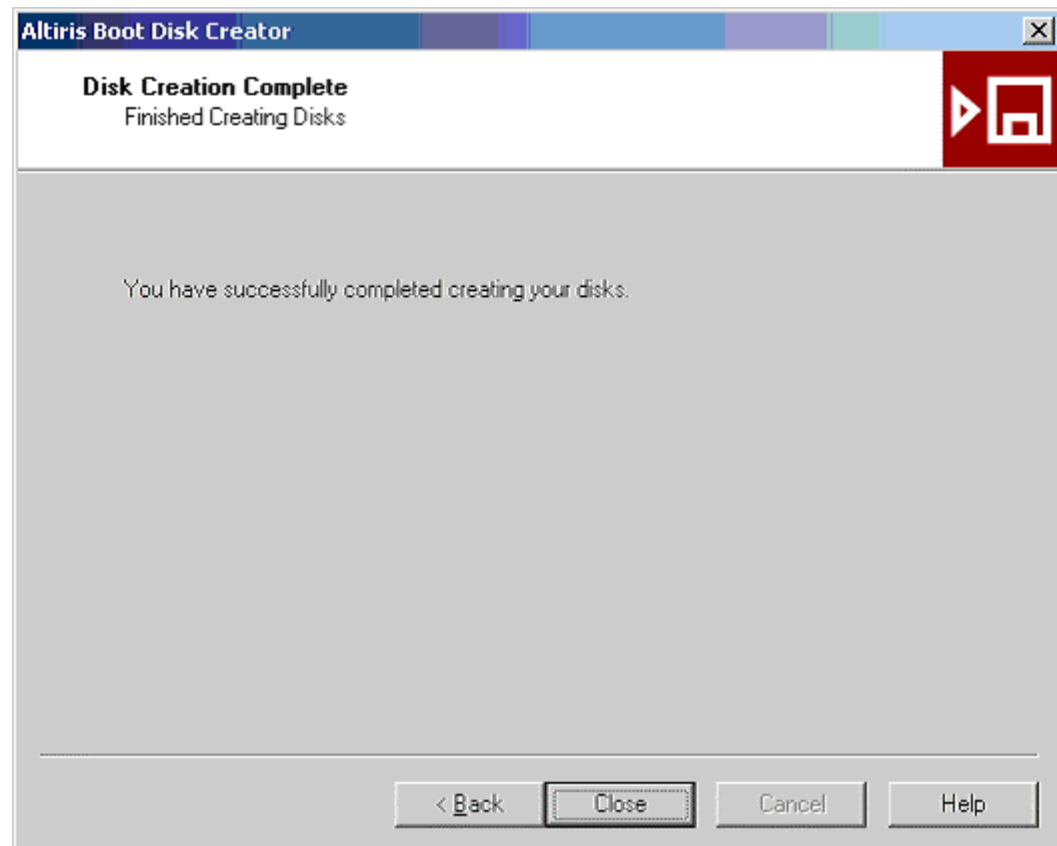


Figure 3-21: Completing disk creation

Preconfiguring the ProLiant Support Pack for Windows

The Web-based Management portion of the Foundation Agents requires that a password be configured in the Smart Component before installation. This password is also used by several other components in the ProLiant Support Pack. Without the password, the Web-based Management portion of the Foundation Agents will install but will not function correctly and will not be accessible on your deployed servers.

NOTE: The components in the ProLiant Support Pack only need to be configured once. The components do not have to be configured each time they are deployed. After a component in the ProLiant Support Pack is configured, it is ready for deployment.

To configure the Foundation Agent (and other Smart Components) in the ProLiant Support Pack:

1. Open **Windows Explorer** and browse to the following directory:
 - For Windows 2000 Server or Advanced Server:
`.\program files\altiris\express\deployment server\deploy\cds\compaq\ss.xxx\w2k\ntcsp`
 - For Windows Server 2003, Standard Edition; Windows Server 2003, Enterprise Edition; or Windows Server 2003, Web Edition:
`.\program files\altiris\express\deployment server\deploy\cds\compaq\ss.xxx\wnet\csp`where *xxx* represents the version of the support files just installed.
2. Locate and double-click **setup.exe**.
3. The Remote Deployment Utility may display the following message:

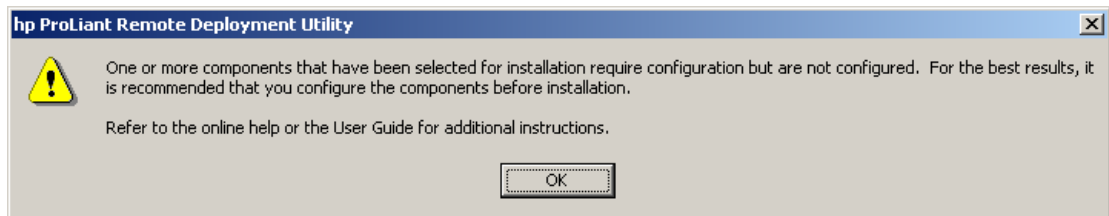


Figure 3-22: Configure components message

Click **OK** to continue.

4. Expand the **All Configurable Components** directory in the tree in the left-hand pane.
5. Right-click **hp Management Agents for Windows 2000/Server 2003**, then select **Configure**.

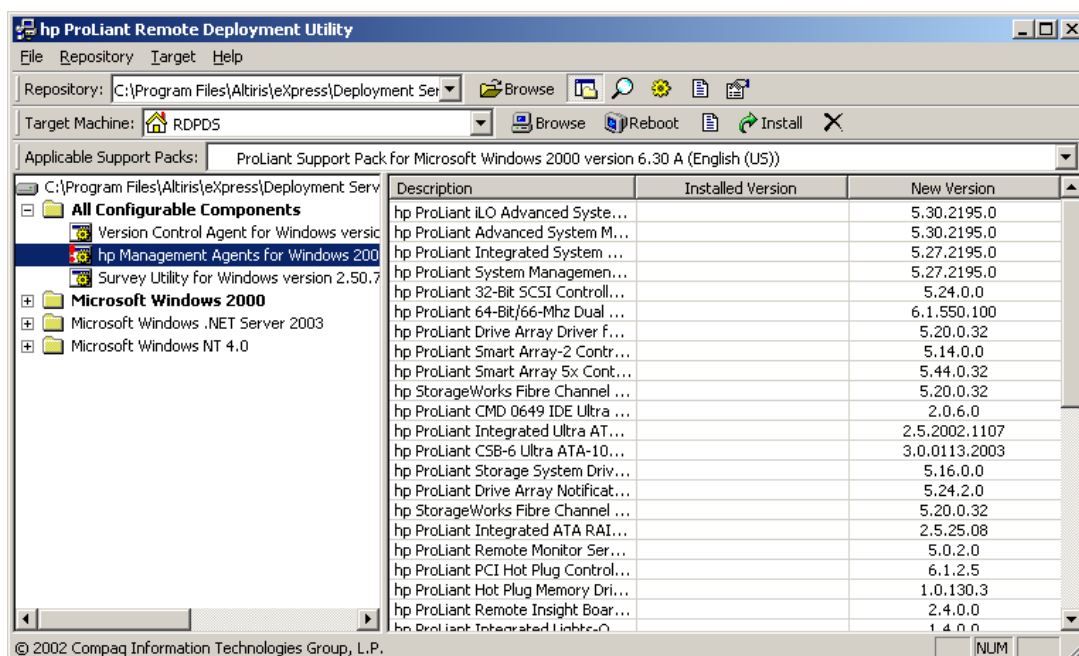


Figure 3-23: Configuring Foundation Agents

6. In the **Administrator Password** section, enter a password in the **Password** field, and confirm. The operator and user passwords can also be entered at this time.

NOTE: This Administrator password does not have to be the same as the Deployment Server Administrator password.

7. At the **Insight Manager 7 Trust Relationship** window, select the appropriate trust mode for the environment. If security certificates are not currently installed, select **Trust All**.

Refer to the *HP Insight Manager Technical Reference Guide* for additional information about selecting a trust mode at <http://www.hp.com/servers/manage>.

8. Click **Save**.

NOTE: The Version Control Agent for Windows and the Survey utility for Windows can also be configured at this time, if desired, in the same manner as the Foundation Agents.

Preconfiguring the ProLiant Support Pack for Linux

The following sections detail how to preconfigure a ProLiant Support Pack for use with Linux.

Web-Based Management Agents

The Web-based Management portion of the Foundation Agents requires that a password be configured before installation. This password is also used by several other components in the ProLiant support software. Without the password, the Web-based Management portion of the Foundation Agents will install but will not function correctly or be accessible on your deployed servers.

Support software directories and scripts associated with each Linux operating system are located on the NFS server. These files are located at `/usr/cpqrdp/ss.xxx/yyy/csp`, where `xxx` is the version of the support files and `yyy` is the operating system, such as `rhas21` for Red Hat Enterprise Linux AS 2.1. A script, `yyy.sh`, is used to install the ProLiant support software, and within this script are the password variables for the Linux Web Agent.

The Linux Web Agent default passwords are listed in Table 3-1.

Table 3-1: Linux Web Agent Default Passwords

User Name	Password
administrator	password
operator	password
user	password

Because these default passwords are documented, HP recommends changing the password either by editing the support software script as previously described or by browsing to the installed server, port 2301 or secured port 2381, and changing the password. By changing the password through editing the support software script, these passwords can be mass deployed to target servers. Also, modified passwords can be replicated to other servers by copying the `/var/spool/compaq/wbem/cpqhmmd.acl` file to other servers after the install.

Red Hat Enterprise Linux AS 2.1 Initial Release Driver Support

If you are deploying Red Hat Enterprise Linux AS 2.1 initial release, Linux driver support RPMs need to be called during the Red Hat scripted installation.

1. On the Linux NFS server, locate the Linux script file, `rhas21.sh`, in the `/usr/cpqrdp/ss.xxx/rhas21/csp` directory, where `xxx` is the support pack version.
2. Edit this script file to remove the `#` (comment symbol) from the beginning of the lines for some or all of the array driver rpm lines:

```
#rpm -ihv cpq_cpqarray_*.rpm  
#rpm -ihv mptlinux-redhat-*.rpm
```

3. On the Linux NFS, locate the Red Hat Kickstart files: `ks.cfg`, `bl20p.ks.cfg`, and `bl40p.ks.cfg` in the `/usr/cpqrdp/ss.xxx/rhas21` directory.
4. Edit each Kickstart file to remove the `#` (comment symbol) from the beginning of the line for the `cciss` array driver rpm line:

```
#rpm -ivh /tmp/cpq/cpq_cciss_RedHatAS21-*.rpm
```

NOTE: This line is not in the `bl10e.ks.cfg` Kickstart file.

Preconfiguring Deployment Settings for Red Hat Linux Scripted Install Jobs

For the Red Hat Linux scripted install jobs to work, they must be modified with the host and domain name or IP address of the Linux NFS server on which the installation files are located.

To update each Red Hat Linux scripted install job to point to the Linux NFS server:

1. Locate the Red Hat Linux scripted install jobs to be modified within the Deployment Server Console. Expand the tree view, if necessary, to view the jobs in the **Jobs** pane.
2. Double-click the job. The **Job Properties** screen displays.

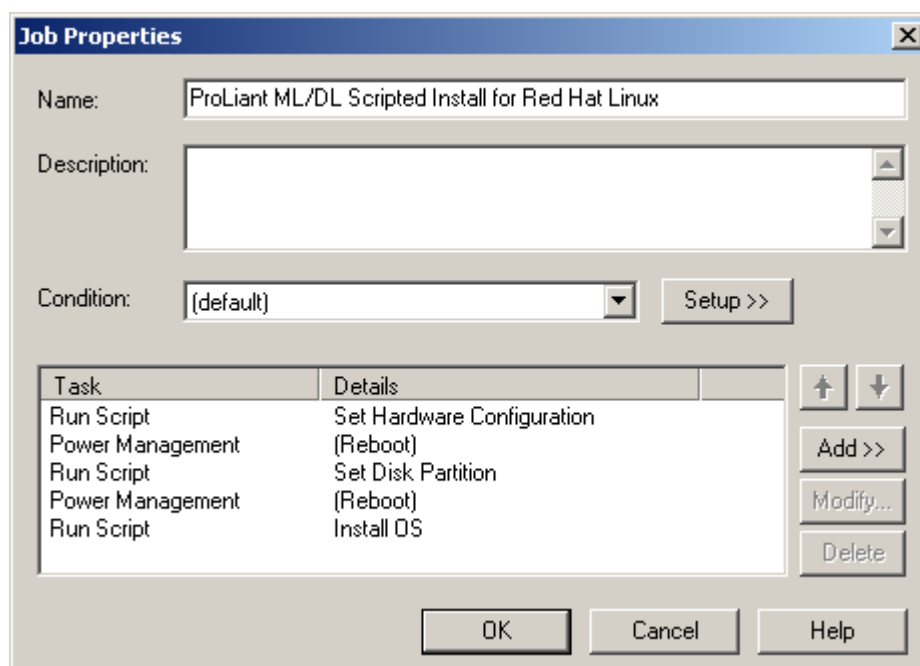


Figure 3-24: Red Hat Linux scripted install job properties

3. Double-click the **Run Script—Install OS** task. Locate the following line in the script:


```
set nfsserver=0.0.0.0
```


4. Change 0.0.0.0 to the host and domain name of the Linux NFS server as follows:

```
set nfsserver=yournfssvr.yourdomain
```

where *yournfssvr* is the host name of the Linux NFS server, and *yourdomain* is the domain name for the Linux NFS server.

Instead of a host name and domain name, an IP address can be specified as follows:

```
set nfsserver=xxx.xxx.xxx.xxx
```

where *xxx.xxx.xxx.xxx* is the fixed IP address of the Linux NFS server.

NOTE: It is more effective to use the IP address to connect to the NFS server than a DNS name, because using a DNS name requires the existence of a DNS server, properly configured with an entry for the NFS server.

5. Click **Finish** to save changes.
6. Repeat steps 2 through 5 for any remaining Red Hat Linux scripted install jobs.

Preconfiguring Deployment Settings for UnitedLinux Scripted Install Jobs

For the UnitedLinux scripted install jobs to work properly, they must be modified with the host and domain name or IP address of the Linux NFS server where the installation files are located.

To update each UnitedLinux scripted install job to point to the Linux NFS server:

1. Locate the UnitedLinux scripted install jobs to be modified within the Deployment Server Console. Expand the tree view, if necessary, to view the jobs in the **Jobs** pane.

2. Double-click the job. The **Job Properties** screen displays.

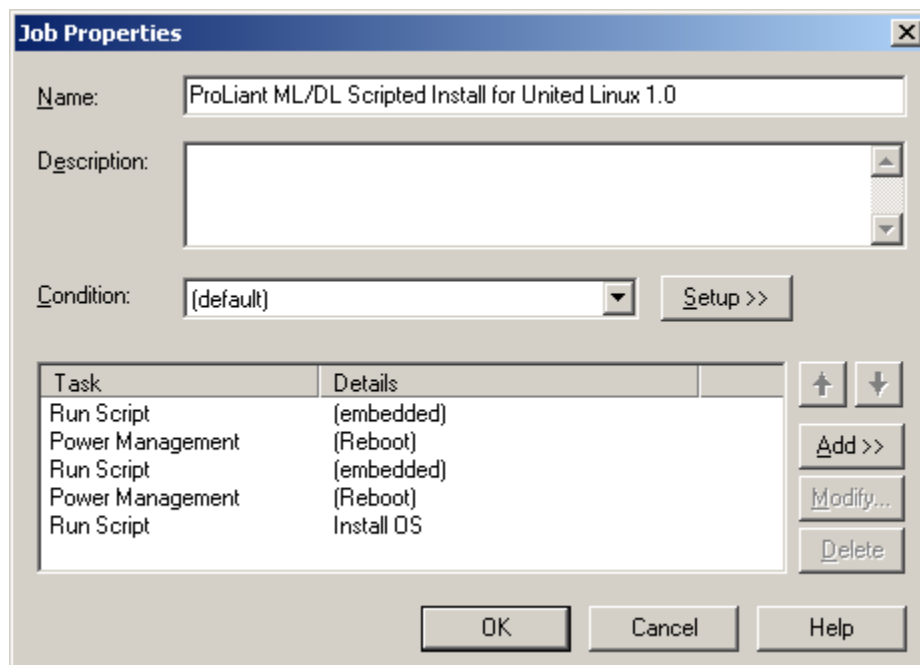


Figure 3-25: UnitedLinux scripted install job properties

3. Double-click the **Run Script—Install OS** task. Locate the following line in the script:

```
set nfsserver=0.0.0.0
```

4. Change 0.0.0.0 to the host and domain name of the Linux NFS server as follows:

```
set nfsserver=yournfssvr.yourdomain
```

where *yournfssvr* is the host name of the Linux NFS server, and *yourdomain* is the domain name of the Linux NFS server.

Instead of a host name and domain name, an IP address may be specified as follows:

```
set nfsserver=xxx.xxx.xxx.xxx
```

where *xxx.xxx.xxx.xxx* is the fixed IP address of the Linux NFS server.

NOTE: Using the IP address to connect to the NFS server is more effective than using a DNS name, because using a DNS name requires the existence of a DNS server, properly configured with an entry for the NFS server.

5. Click **Finish** to save changes.
6. Repeat steps 2 through 5 for any remaining UnitedLinux scripted install jobs.

Pre-Deployment Configuration Tasks for Packaged Cluster Deployment

Packaged cluster deployment can be accomplished using one of three jobs provided in the Rapid Deployment Pack.

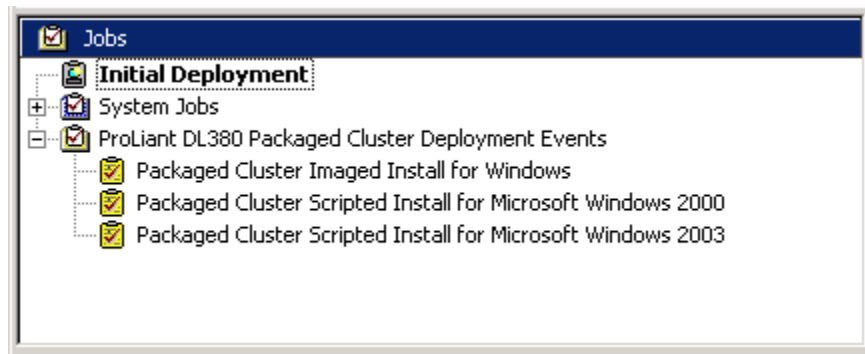


Figure 3-26: Packaged cluster deployment jobs

For the packaged cluster deployment jobs to work properly, the modifications in the following sections must be completed before cluster deployment.

Creating and Customizing a Configuration File

1. On the Deployment Server, copy and rename the `clustername.ini` file in the `.\\deploy\\configs\\clusters` directory.

IMPORTANT: A unique cluster configuration file must be created for each cluster to be deployed. This file must have the same name as the cluster being deployed.

2. In the new file, specify a domain administrator-level account name and password for the cluster. This account will be used to run the cluster service.
3. Specify an IP address and subnet mask for the cluster.
4. Specify the domain for the cluster.
5. Specify the available private IP addresses for the private NIC in each node in the cluster.
6. Specify the Windows network name for the private NIC in each node participating in the cluster.

7. Specify the Windows network name for the public NIC in each node participating in the cluster.

For example, refer to the following sample cluster configuration file text.

```
===Network Section=====
;PRIVATE0=1.1.1.1  <---IP address for the private NIC in node 1
;PRIVATE1=1.1.1.2  <---IP address for the private NIC in node 2
;ClusPublicNet=Local Area Connection
                    ^--Windows network name for NIC 1 on both nodes
;ClusPrivateNet=Local Area Connection 2
                    ^--Windows network name for NIC 2 on both nodes
===Cluster Section=====
[Cluster]
account=Administrator
password=password
domain=rdp
ipaddr=30.31.0.50
subnet=255.255.0.0
```

NOTE: If standard packaged cluster hardware is used, the default network names provided in the cluster configuration file will work, as long as they are not changed from the default Windows install during the scripted install or in the server image.

IMPORTANT: Microsoft Cluster Services requires a domain administrator account to run the cluster service. This password is stored in plain text in the cluster configuration file on the Deployment Server. It is recommended that you protect server administrator passwords by ensuring that:

- Only authorized people have access to the eXpress share where the configuration files are located.
- A user account exists for accessing the eXpress share separately from the rest of the Deployment Server.

Providing the Domain Administrator Account for Cluster Deployment

Each cluster deployment job contains a task to create or join the cluster from each node. Windows security requires that this task be run by an account with domain administrator credentials. Provide these credentials for each cluster deployment job to be run in a particular domain:

1. Open the **Job Properties** window for the packaged cluster deployment job.
2. Scroll to the **Create/Join Cluster** task and click **Modify**.
3. Click **Advanced**.
4. In the **Security Context** area, select **Enter user name and password** and supply the domain/username and password valid in the domain for the cluster.
5. Click **OK** to close the window, and then click **Finish** to close the **Script Properties** window.
6. Click **OK** to close the **Job Properties** window.
7. Repeat steps 1 through 6 for each packaged cluster job prior to deployment.

Making the Cluster Nodes Available in the Deployment Server Console

The cluster nodes must be available in the Deployment Server Console and organized in a group named for the cluster they will form before running the packaged cluster deployment jobs. To achieve this, import the cluster nodes into the Deployment Server Console using one of the following methods:

Method One—New Computer GUI

Using the New Computer GUI provided by the Deployment Server Console:

1. Open the **New Computer Properties** dialog box.
2. Select **File>New>Computer**.
3. Enter the **Name**, **Serial Number**, and **Computer Name**.
4. Click **Microsoft Network**.
5. Select **Domain**, and enter the domain the node will join.
6. Click **TCP/IP**.
7. Click **Add** next to the **Network Adapter** drop-down menu. **Network Adapter 2** displays in the list.
8. Select **Assign a static IP address**.
9. Enter an IP address and subnet mask for the private network card in this node.
10. Click **OK** to close **New Computers Properties**, then click **Add**.
11. Repeat steps 1 through 9 to provide the information for the second node.
12. Click **OK** to close **New Computers**.

Method Two—Import Computers From a File

Use the **Import Computers from a File** method in the Deployment Server Console to create an import file based on the sample import file, `clusimport.csv` in `.\\deploy\\configs\\clusters`.

In the sample file below, the cluster node is named **clusnode1**, the serial number is D207KGY1K056, a **1** indicates domain membership, joining the RDP domain, a **1** indicates DHCP for NIC 1, the cluster name is **mycluster**, the IP address and subnet mask is 15.15.15.1, and 255.0.0.0 for its private NIC.

```
clusnode1,,D207KGY1K056,,clusnode1,1,RDP,,1,,,,,,,,,,,,,
HASE,HP,,,,,,,,,,,,,mycluster,,,,0,15.15.15.1,255.0.0.0
clusnode2,,D207KGY1K057,,clusnode2,1,RDP,,1,,,,,,,,,,,,,
HASE,HP,,,,,,,,,,,,,mycluster,,,,0,15.15.15.2,255.0.0.0
```

Method Three—Modify After Initial Deployment

Modify the computer name in the console after initial deployment (the first PXE boot) of the cluster nodes, add the nodes to a computer group in the console, and name this group after the cluster to be formed.

IMPORTANT: Method three is only available if using the scripted packaged cluster deployment jobs.

Creating the Computer Group

After the computers are in the console, create a new computer group with the same name as the cluster to be formed.

1. Right-click in the **Computers** pane, and select **New Group**.
2. Rename this group to the name of the cluster.
3. Drag the nodes to form this cluster into the new group.

The cluster nodes should now be listed in a group with the same name as the cluster they will form. Figure 3-27 displays a cluster group called “mycluster,” and the nodes, “clusnode1” and “clusnode2.”

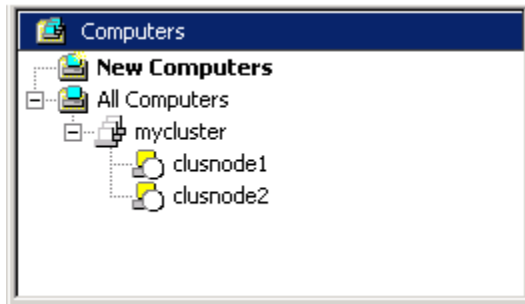


Figure 3-27: Cluster nodes

Customizing the Microsoft Answer Files for Packaged Cluster Scripted Installs

If using the **Packaged Cluster Scripted Install for Microsoft Windows 2000** or the **Packaged Cluster Scripted Install for Microsoft Windows 2003** job, complete the following section:

1. Specify a domain-level administrator account and password in the unattended Windows install answer files. For Windows 2000, this file is w2kclus.txt, and for Windows Server 2003, this file is wnetclus.txt. These files are located in the Deployment Server Console in the .\deploy\configs\clusters directory.
2. Update the file with the following information:
 - A domain administrator account name
 - The password for that account
 - The domain for that account (which the cluster nodes will join)

For example:

```
[Identification]
    DomainAdmin=*
    DomainAdminPassword=*
    JoinDomain=*
```

NOTE: This account does not have to be the domain Administrator account for the cluster, but the account must have permission to add computers to the domain.

Creating a Reference Configuration for a Packaged Cluster Imaged Install

If using the **Packaged Cluster Imaged Install for Windows** job, a reference ProLiant DL380 server configuration is needed. This reference server must be configured with the Microsoft Windows 2000 Advanced Server or Microsoft Windows Server 2003, Enterprise Edition. Additionally, any minimum required service packs and support packs must be installed. An image of this server is then taken for use in the **Packaged Cluster Imaged Install for Windows** job. Perform the following steps to correctly configure the reference server:

1. Install the desired operating system on the reference server.
 - a. For Windows 2000, select the **Cluster Service** component during setup in order to copy the clustering binaries to the server prior to imaging.
 - b. For Windows Server 2003, the necessary clustering software is automatically installed, so this additional setup task is not required.

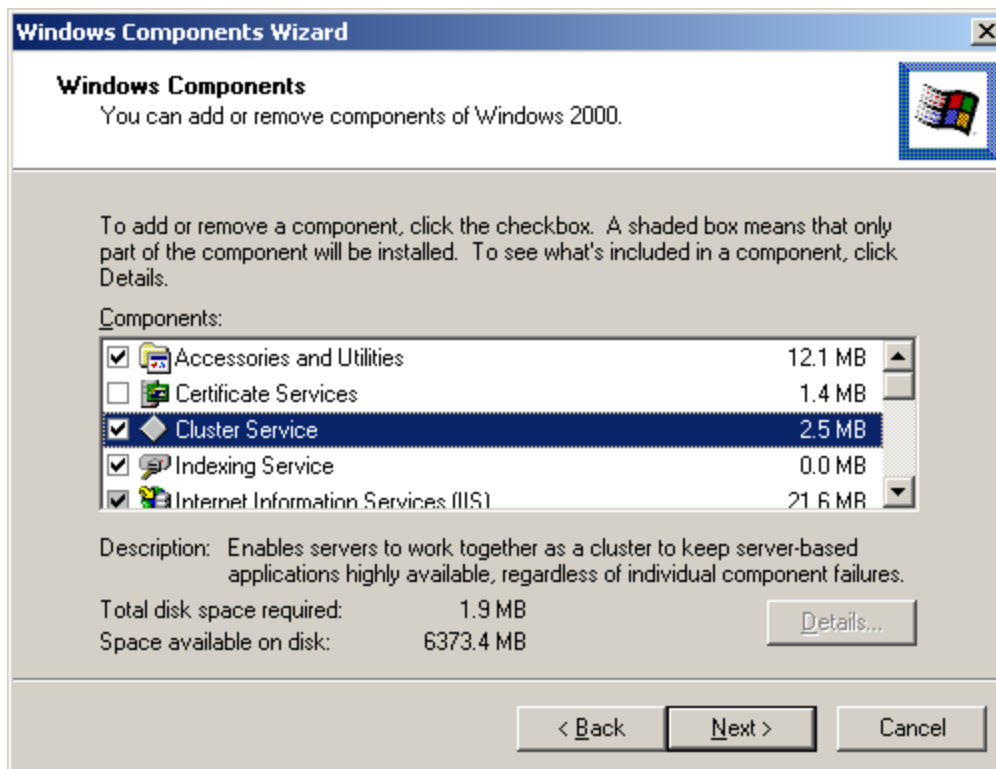


Figure 3-28: Installing Cluster Service with Windows 2000

2. Install any service packs and support packs to the reference server.
3. Capture an image of the reference server with the **Capture Hardware Configuration and Windows Image** job located in the SmartStart Toolkit and OS Imaging Events folder.

- After the **Capture Hardware Configuration and Windows Image** job has completed on the reference server, browse to the image file on the Deployment Server. This file will be located in the .images folder. Rename the file wincap.img to a filename describing the operating system and the server type captured.

NOTE: It is recommended to make a copy of the **Capture Hardware configuration and Windows Image** job. Rename the job and edit it to create an image with the desired file name.

- From the Deployment Server Console, make a copy of the **Packaged Cluster Imaged Install for Windows** job and rename it based on the type of server and operating system captured. In this new job, open the **Deploy Image** task and edit the image file name to point to the reference server image file.

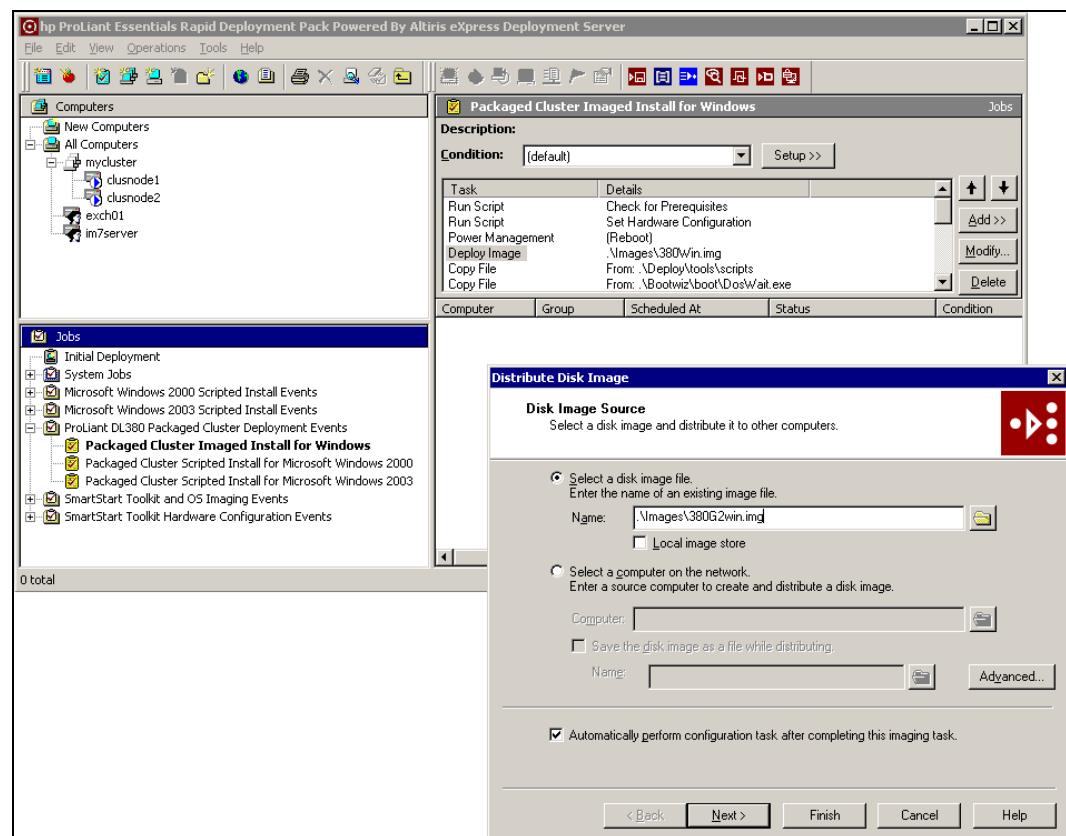


Figure 3-29: Editing task

IMPORTANT: The image specified for a **Packaged Cluster Imaged Install for Windows** job that will deploy a Windows 2000 image must contain the clustering binaries. If deploying a Windows 2003 server image, this is not a requirement because the cluster binaries are a default component of this version of Windows.

Server Deployment

Overview

This chapter provides the following information:

- A description of the jobs that are provided as a part of Rapid Deployment Pack
- Walk-throughs of deploying ProLiant BL servers and ProLiant ML/DL servers using the provided jobs

Understanding the Rapid Deployment Pack Jobs

When you installed the Rapid Deployment Pack, several sets of deployment jobs were imported into the Deployment Server Console for you.

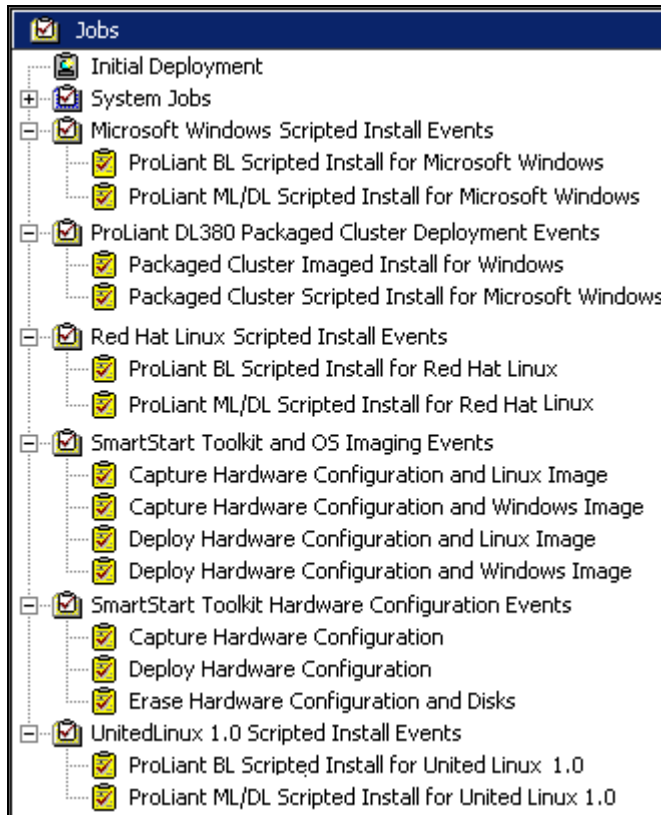


Figure 4-1: Deployment Server Console Jobs pane

These jobs are organized into the following categories:

- Scripted install jobs for specific operating systems
- ProLiant DL380 Packaged Cluster Deployment jobs
- SmartStart Toolkit and OS Imaging jobs
- SmartStart Toolkit Hardware Configuration jobs

IMPORTANT: Hardware configurations can only be replicated to ProLiant servers of the same model, with all hardware options installed identically.

Scripted Install Jobs

A scripted install job enables you to perform a scripted hardware configuration and operating system installation of Windows 2000, Windows Server 2003, Red Hat Linux, or UnitedLinux on a configured or unconfigured server.

The scripted install jobs:

- Run a batch file that configures the hardware, using the CONREP and ACR utilities from the SmartStart Scripting Toolkit.
- Reboot the computer.
- Run a batch file that partitions the hard drive, using the CPQDISK utility.
- Reboot the computer.
- Run a batch file that copies support files to the hard drive of the target server, and starts the operating system-specific scripted installation mechanism.

To use any of the scripted install jobs, click and drag the job to the target server icon in the **Computers** pane in the Deployment Server Console and drop it.

IMPORTANT: For Linux scripted installs, be sure that you have modified the jobs according to the instructions in Chapter 3.

Default Password

The default password for servers created using provided scripts is `password` (all lowercase).

For Windows servers, this password, as well as many other settings, can be modified by editing the unattended answer file located in the `.deploy\configs` directory, which is located in the Deployment Server default installation directory.

For Linux servers, you can modify this password and other settings by editing the Linux answer files on the Linux NFS server. These files are the Kickstart files for Red Hat Linux servers and the control files for UnitedLinux servers.

Default Hardware Configuration

Hardware configuration using these jobs is accomplished through the automatic “smart default” methods provided by the SmartStart Scripting Toolkit utilities. The BIOS is configured to accept default parameters, and the array controller (if any) is configured according to one of the following methods:

- If the system contains one hard drive, the system is configured for RAID 0.
- If the system contains two hard drives, the system is configured for RAID 1.
- If the system contains three hard drives, the system is configured for RAID 5.
- If the system contains four or more hard drives, the system is configured for RAID ADG, if supported. Otherwise, the system is configured for RAID 5.

When configuring the disk partition for a scripted operating system installation, the following defaults are used:

- For Windows, a single 2-GB partition is created (automatically expanded to the full drive size during the operating system install).
- For Red Hat Linux, a single 5-MB partition is created to install initial files (this partition is automatically deleted during Linux install), along with a 75-MB boot partition. The remainder of the disk space is partitioned per Linux default specifications.
- For UnitedLinux, a single 5-MB partition is created to install initial files (this partition is automatically deleted during Linux install). The remainder of the disk space is partitioned per UnitedLinux default specifications.

Default scripted installation files are provided that deploy a server without modification. You can modify these scripted install files prior to deployment to meet your own requirements.

Windows and Linux Scripted Install Jobs

The Windows and Linux scripted install jobs configure the hardware using the parameters mentioned in the “Scripted Install Jobs” section, and install a Windows operating system with the Microsoft scripted installation method, which uses the unattend.txt file, or a Linux operating system using either the Red Hat scripted installation method, Kickstart, or the UnitedLinux scripted installation method, AutoYaST.

The provided deployment jobs use some default configuration parameters. To deploy servers with specific configuration settings, you must modify the scripted install job or underlying files to suit your needs. For details about modifying the jobs provided in the Rapid Deployment Pack, refer to Chapter 5.

Different deployment jobs are provided, based on the server model, because of differences in technology or installation requirements. It is important to use the correct deployment job for the correct server platform.

NOTE: The administrator and root password are `password` by default on scripted installs.

ProLiant DL380 Packaged Cluster Deployment

A Packaged Cluster deployment job performs a scripted or imaged operating system installation, configures the Smart Array Cluster Storage, configures the Windows partitions on the shared storage, and deploy the Microsoft Cluster Services to each cluster node.

Operating System Installation

The Packaged Cluster Scripted Install for Microsoft Windows 2000 and Packaged Cluster Scripted Install for Microsoft Windows 2003 jobs follow the same operating system deployment steps as the ProLiant ML/DL Scripted Install for Microsoft Windows 2000 job or the ProLiant ML/DL Scripted Install for Microsoft Windows 2003 job, with minor differences (in the details of the hardware configuration task and the first install OS task). The Packaged Cluster install jobs:

- Run a batch file that configures the hardware using the CONREP and ACR utilities from the SmartStart Scripting Toolkit. The ACR utility uses an array configuration file for the Packaged Cluster, DL380-a.ini, which contains array information for the internal storage only.
- Reboot the computer.
- Run a batch file that partitions the hard drive using the CPQDISK utility.
- Reboot the computer.
- Run a batch file that copies the support files and a custom unattended text file for clusters to the hard drive of the target server, and starts the operating system specific scripted installation mechanism.

The unattended text file required for installing Windows clusters with the Microsoft scripted installation method is different than the single server unattended answer file to facilitate cluster deployment. The cluster answer files for scripted Windows installations included with the Rapid Deployment Pack contain domain and administrator account information so the cluster nodes can join a domain prior to Microsoft Cluster Services deployment. Additionally, for Windows 2000 cluster scripted installations, the unattended text file also specifies the cluster option in the **Components** section. This forces the Windows setup to copy the cluster binaries to each node.

If the Packaged Cluster Imaged Install for Windows job is used to deploy the operating system to the cluster nodes, the deployment process is identical to that in the Deploy Hardware Configuration and Windows Image job, with the exception of the first task previously described.

Post-Operating System Installation Tasks

After the operating system installation, the Packaged Cluster deployment jobs:

- Set up the deployment environment.
- Run a script to count the local disks and volumes on the primary node.
- Run a script to create the shared storage arrays from the primary node.

- Reboot the computer.
- Run a script to place the secondary node in a DOS wait state.
- Run a script to create the Windows partitions on the shared storage from the primary node.
- Reboot the computer.
- Run a script to create the cluster.
- Run a script to create a cluster flag on the Deployment Server.

Both nodes in a cluster execute the same tasks in the Packaged Cluster deployment jobs, but within each task is a check to determine the role of the cluster node currently running that task. If a task is specified for the primary node only, the secondary node bypasses the script called in the task and proceeds to the next task in the job. If a task is specified for the secondary node only, the primary node bypasses the script called in the task and proceeds to the next task in the job. This functionality of the Packaged Cluster deployment jobs is important for Microsoft clusters, as only one node can create the logical drives and Windows partitions on the shared storage and then form the cluster.

Cluster Deployment Environment Setup

Three tasks in the Packaged Cluster deployment job are used to set up the deployment environment on the Deployment Server and the cluster nodes. These three tasks:

- Copy the deployment scripts to the cluster nodes.
- Copy the deployment utilities to the cluster nodes.
- Determine the node roles (primary or secondary), and copy the storage and cluster configuration files to the nodes.

Shared Storage Configuration

A Microsoft cluster requires that the shared storage be configured with logical drives and Windows partitions before deploying Microsoft Cluster Services. Four tasks in the Packaged Cluster deployment job are used to configure the Smart Array Cluster Storage for use in the cluster. These four tasks:

- Run a script that uses the Microsoft Resource Kit utility DISKPART to count the number of local disks and volumes on the primary node to differentiate from the shared disks and volumes.
- Run a script that uses ACU-XE to create the logical drives in the Smart Array Cluster Storage. The default configuration file provided will create one RAID 1+0 array with two logical drives. One logical drive will be used for the cluster quorum drive. For information about creating additional drives using custom array configuration files, refer to Chapter 5.

- Run a script in DOS that the operating system on the primary node can use to reboot and detect the new hardware. When the secondary node executes this script, it will wait in a loop until the cluster flag is created by the primary node, indicating that the cluster has come online.
- Run a script that uses the Microsoft Resource Kit utility DISKPART to create Windows partitions on the shared storage. The new partitions are then formatted with NTFS partitions and assigned drive letters.
- Reboot the computer.

Cluster Configuration

The last two tasks in the cluster deployment event create the cluster when run on the primary node and join the cluster when run on the secondary node.

- Run a script that deploys Microsoft Cluster Services to the cluster nodes. The script called by this task will form the cluster on the primary node and join the cluster on the secondary node.
- Run a script that has the primary node create the cluster flag on the Deployment Server to indicate that the cluster is online.

SmartStart Toolkit and OS Imaging Jobs

SmartStart Toolkit and OS Imaging Jobs are used to capture an exact copy of a server hardware configuration and hard drive image and deploy these to other ProLiant servers.

When replicating servers using imaging, the reference server and the target server should be the same server model and have the same hardware configuration.

The SmartStart Toolkit and OS Imaging Jobs:

- Run a batch file that captures or deploys the hardware configuration, using the CONREP and ACR utilities from the SmartStart Scripting Toolkit.
- Reboot the computer.
- Run the Altiris imaging tool to capture or deploy the target server hard drive image.

To use any of the SmartStart Toolkit and OS Imaging Jobs, click and drag the job over to the target server icon in the **Computers** pane in the Deployment Server Console and drop it.

NOTE: You must have already created the image using a Capture job before using a Deploy job.

Windows and Linux Imaging Jobs

Windows and Linux systems are imaged using the default Altiris imaging mechanism, which relies on the Altiris Deployment Agent running on the system to be imaged. The imaging task instructs the Deployment Agent to perform pre-imaging configuration tasks on the system to be imaged, then the system reboots to MS-DOS so the imaging can be performed. After the imaging is completed, the system reboots back to Windows or Linux, where the Deployment Agent recreates the previous configuration of that system. The pre-imaging configuration is necessary because, when deploying a Windows or Linux image to a target system, the Deployment Agent performs post-image configuration tasks, such as configuring the computer name, IP address, domain name, security ID, and so on.

SmartStart Toolkit Hardware Configuration Jobs

The SmartStart Toolkit Hardware Configuration Jobs can be used to quickly deploy a server hardware configuration to other ProLiant servers.

The SmartStart Toolkit Hardware Configuration Jobs:

- Run a batch file that captures or deploys the hardware configuration using the CONREP and ACR utilities from the SmartStart Scripting Toolkit.
- Reboot the computer (a reboot is required after configuring the array controller).

The SmartStart Toolkit Hardware Configuration Jobs also include the System Erase utility. This utility can be used to erase all the data on a system, including the hardware configuration and hard drives.



CAUTION: Using the System Erase utility will erase all data on the system. Ensure that all appropriate backups have been made before using the System Erase utility, to prevent any data loss.

To use any of the SmartStart Toolkit Hardware Configuration Jobs, click and drag the job to the target server icon in the **Computers** pane in the Deployment Server Console and drop it.

NOTE: The disk partition information is not captured by these jobs because, if you use imaging, it is not necessary to first create a disk partition. Sample partition files are provided for use with Windows or Linux to work with the scripted installs.

Deploying ProLiant Servers

The Rapid Deployment Pack works for all supported ProLiant ML and ProLiant DL servers and is especially optimized for the ProLiant BL servers.

The following sections guide you through a scripted install-based deployment and an imaged install-based deployment for each class of server.

ProLiant BL Server Blades

You can deploy all of the server blades in an enclosure using a scripted install job. However, it is faster to run the scripted install on the first blade, which is the reference server, then capture and deploy the reference server image to all the other blades in the enclosure simultaneously.

Scripted Installation Deployment for ProLiant BL Servers

IMPORTANT: If the default rack and enclosure names are changed, they should be changed before the first server in an enclosure connects to the Deployment Server for the first time, using the appropriate method for the enclosure. If the default information is not changed before the Deployment Server connects to the server blades and recognizes the rack and enclosure names, the server blades must be rebooted to change this information in the Deployment Server Console. For more information, refer to “Configuring ProLiant BL Server Enclosures” in Chapter 3.

To deploy a server blade using the scripted install method:

1. Insert the server blade into its enclosure. The blade automatically powers on and connects to the network. Through PXE, the Deployment Server detects all server blades that come online and displays them in the **Computers** pane of the Deployment Server Console under **New Computers**.

Server blades display in the Deployment Server Console as the rack name-enclosure name-bay number. For example, in Figure 4-2, the rack name of the first server is HPQ, the enclosure name is BL10e, and the bay number is 1. The server blade is denoted by an icon, which specifies that the server blade is waiting for instructions.

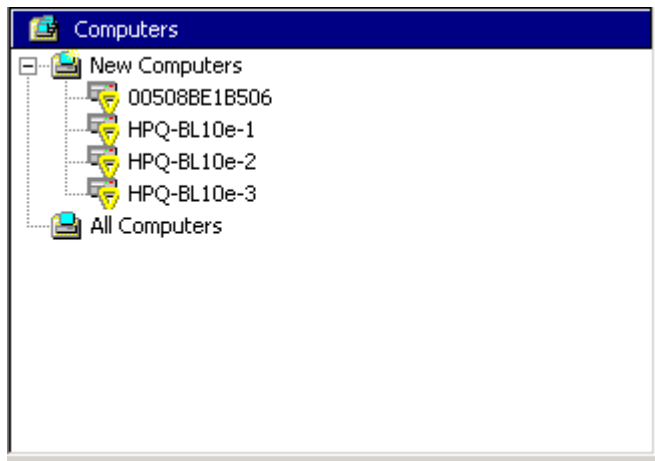


Figure 4-2: New blades in the Deployment Server Console

The Rapid Deployment Pack can detect and display server blades based on their physical rack, enclosure, and bay locations. To see the physical view, select **View>Physical Devices View**.

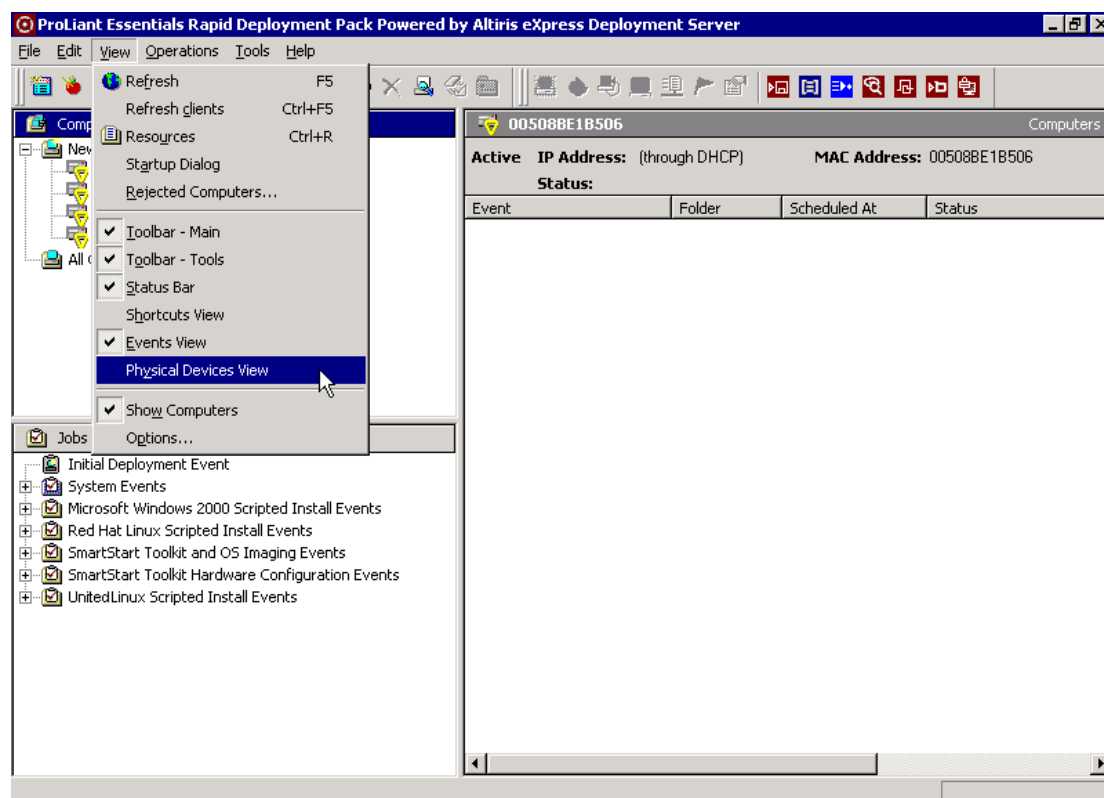


Figure 4-3: Physical Devices View option

You see the blades in a view similar to Figure 4-4.

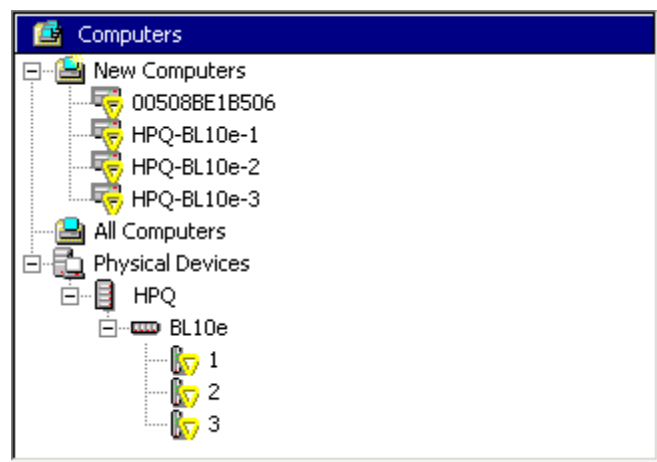


Figure 4-4: Deployment Server Console Computers pane

- From the Deployment Server Console, deploy a single server blade by selecting the scripted install job for your specific server model and operating system and dragging this icon to the server blade you want to deploy.

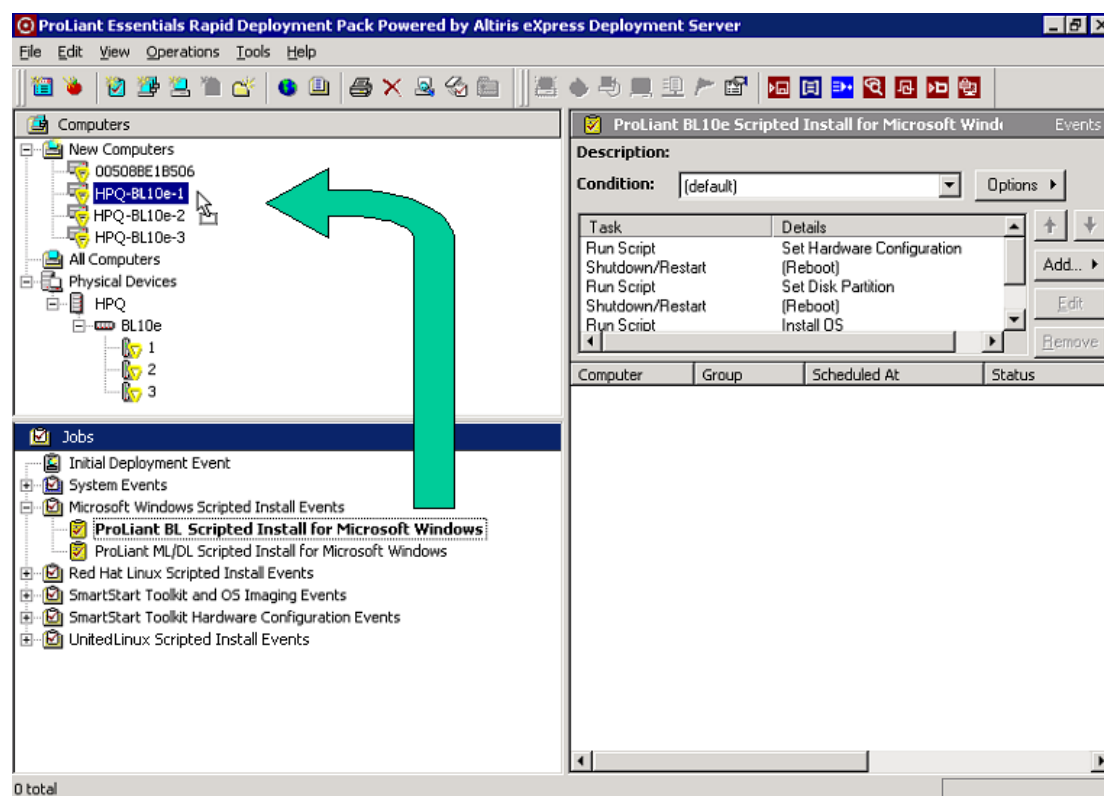


Figure 4-5: Deploying a server blade with scripted install

The details pane on the right side of the Deployment Server Console displays the tasks that are occurring during the installation.

When the actions for server deployment are complete, the server icon changes, depending on the server status. After you make any necessary post-installation modifications, this server can be used as your reference server.

NOTE: The status of the job may change to **Complete** prior to the actual completion of the job. This is because there is no way to communicate the status of the installation during the operating system portion of the installation. When the installation completes, the Deployment Agent is loaded on the target server and will connect back to the Deployment Server automatically, displaying the blue server icon. Only then can you confirm visually that the deployment is complete.

NOTE: The server name of the deployed server is changed. For Windows installs, the server name is a randomly generated name specified by the unattend.txt file. For Linux installs, the server name is the default hostname.

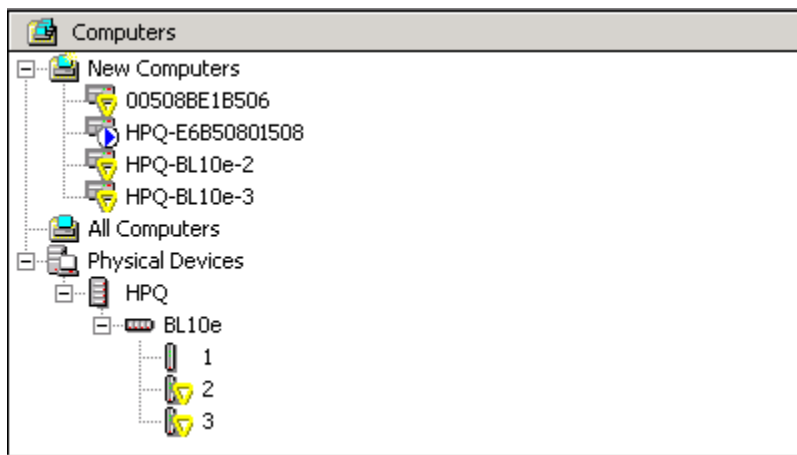


Figure 4-6: Server deployment completed

Image Deployment for ProLiant BL Servers

To deploy a server blade using imaging:

1. From the Deployment Server Console, select the Capture Hardware Configuration and Image job for the specific server model and operating system, and drag this icon to the reference server blade.

IMPORTANT: The jobs provided in the Rapid Deployment Pack create and deploy images using a predefined image name. If you use the jobs without modification, each time you capture a new image, it overwrites the previous image. To capture different images for different server configurations, copy and rename the job, and modify the file name variables within the job so that the files are saved to a unique name.

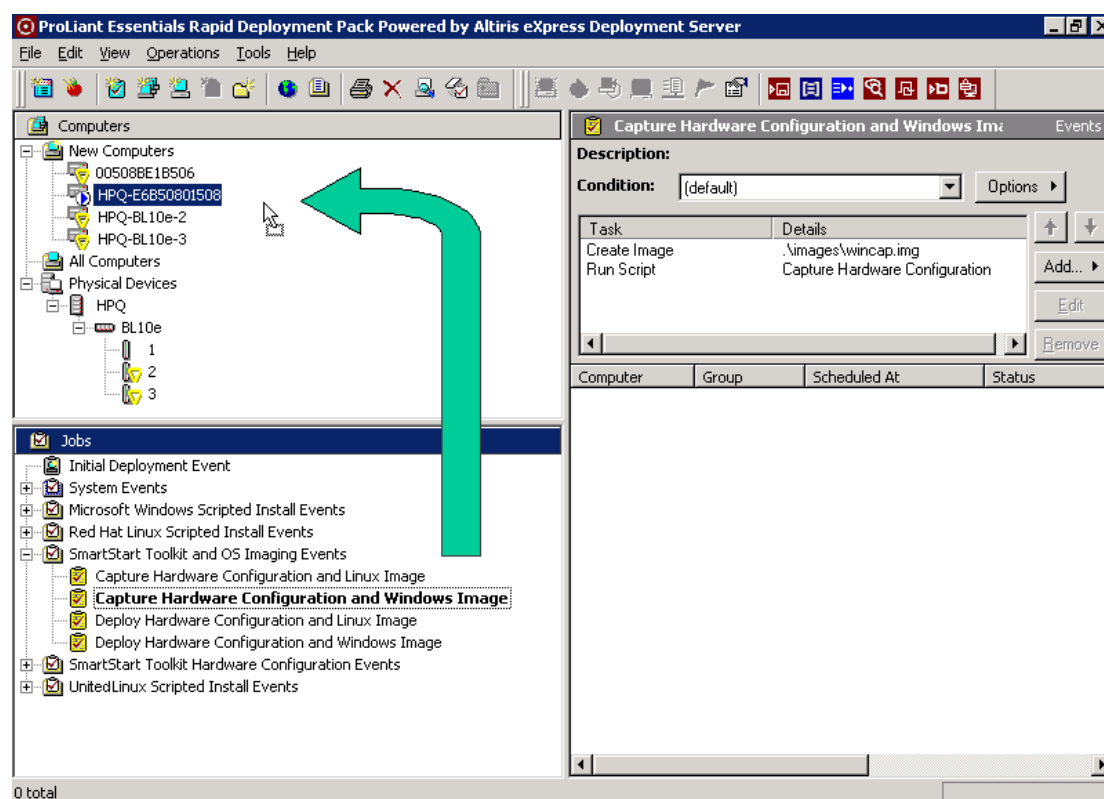


Figure 4-7: Capturing the hardware configuration and image

The server reboots and performs the specified tasks.

- After the image capture is complete, select all of the server blades to be deployed, and drag these to the corresponding Deploy Hardware Configuration and Image job for the server model and operating system.

NOTE: To facilitate easy redeployment of a blade using automated rules (Rip-and-Replace), redeploy the captured image back to the same reference server blade.

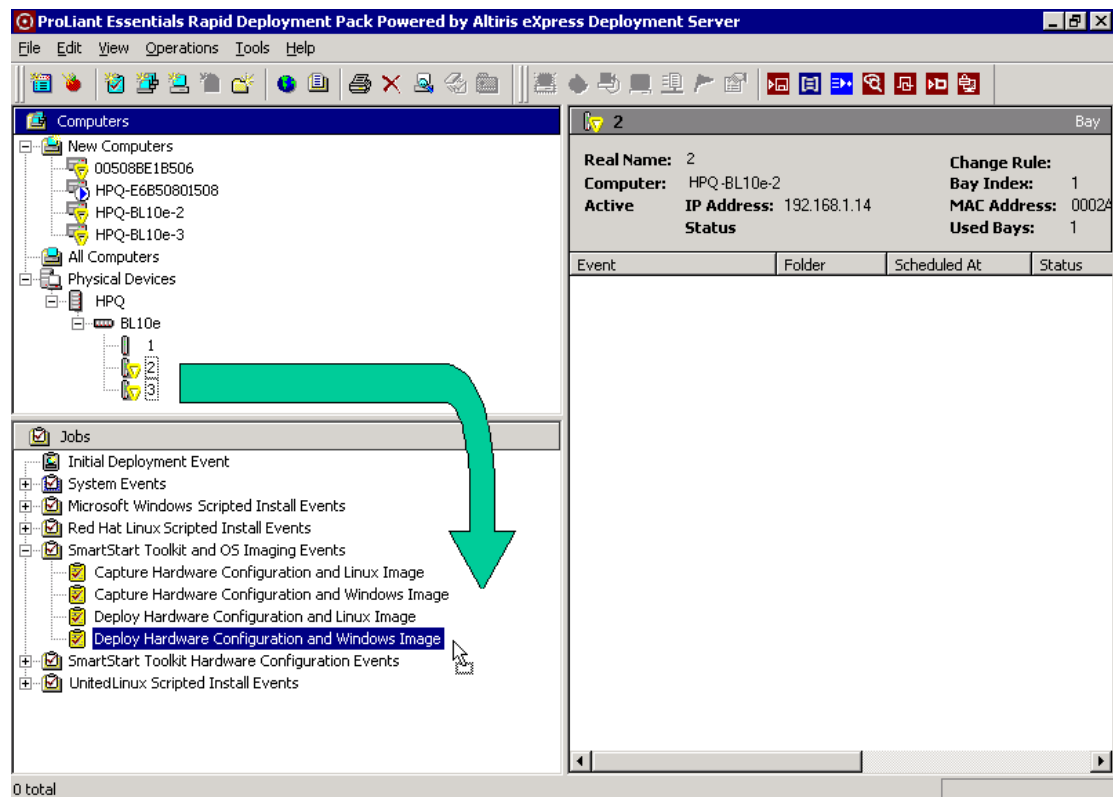


Figure 4-8: Deploying hardware configuration and image

The image of the reference server captured in step 1 is deployed to all of the selected server blades simultaneously.

NOTE: If you are deploying to all the blades in an enclosure, you can drag the deployment job and drop it on the enclosure. The job then runs on every blade in the enclosure.

When the server deployment is complete, the server icons change, depending on the server status.

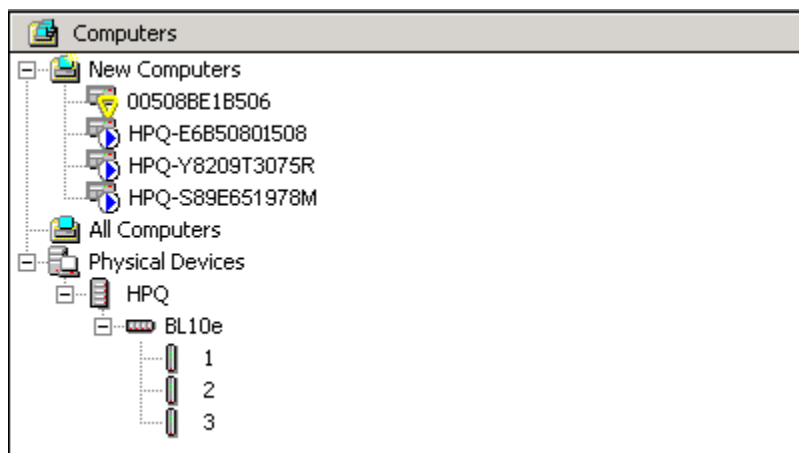


Figure 4-9: Server deployment completed

After imaging, the Deployment Agent for Windows performs several post-imaging configuration tasks, which require a total of two server reboots. During this configuration phase, a window is displayed on the server that reads **Please Wait, Configuring Computer**. Only when the task status in the Deployment Server Console reads **Configuration complete** is the system ready to use.

ProLiant ML/DL Servers

These sections provide a walk-through of a scripted install-based deployment and an imaged install-based deployment for ProLiant ML/DL servers.

Scripted Installation Deployment for ProLiant ML/DL Servers

To deploy a ProLiant ML/DL server using the scripted install method:

1. Power up the target server. A PXE request is made to the Deployment Server and the Deployment Server proceeds to send boot images to the target server. When the server comes online, it is denoted by an icon, which specifies that the server is waiting for instructions.

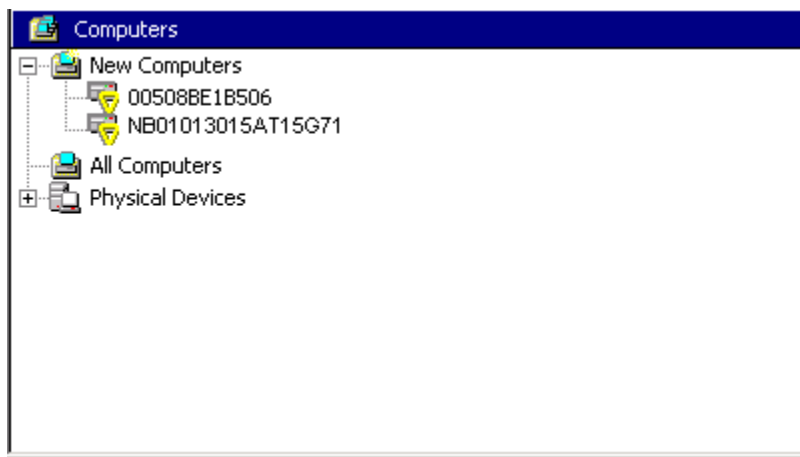


Figure 4-10: Deployment Server Console Computers pane

When new computers come online, the Deployment Server attempts to read SMBIOS for a serial number. If it finds the serial number, the Deployment Server uses the serial number as the computer name, as shown for the second computer in Figure 4-10. If a serial number cannot be found, the name becomes the MAC address of the NIC connected to the Deployment Server, as shown for the first computer in Figure 4-10.

- From the Deployment Server Console, deploy a single ProLiant ML/DL server by selecting the scripted install job for your specific server model and operating system in the **Jobs** pane, and dragging this icon to the server you want to deploy in the **Computers** pane.

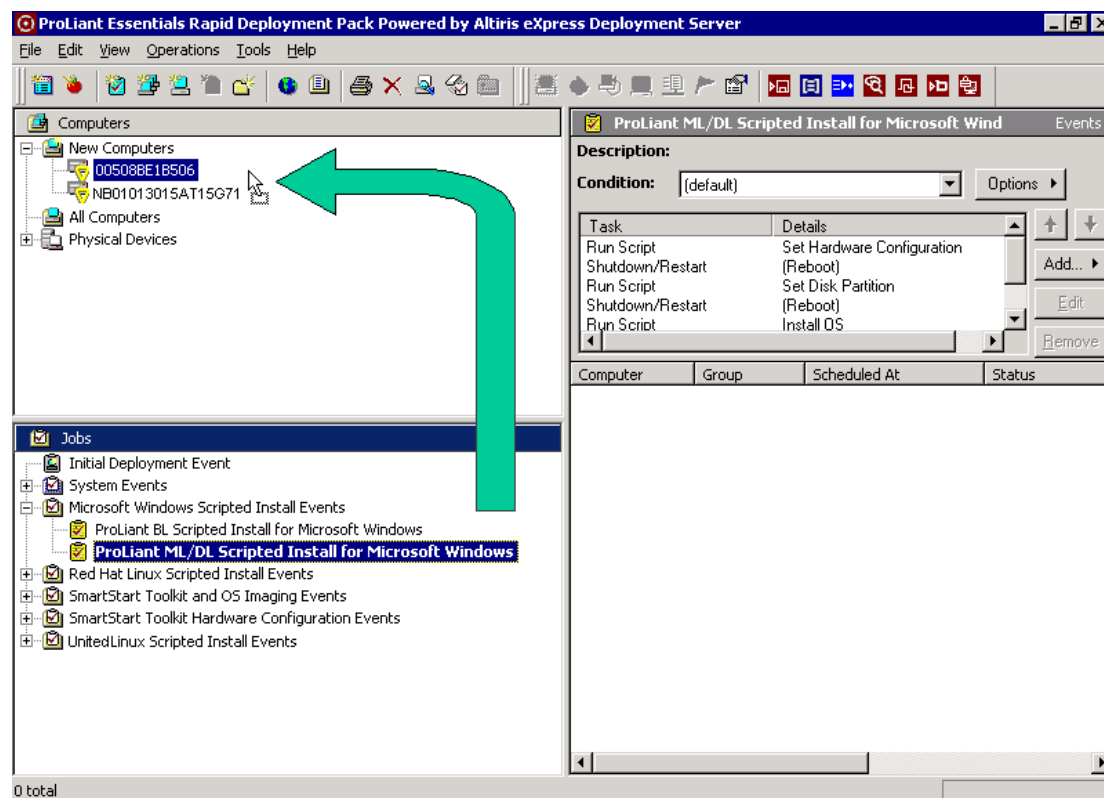


Figure 4-11: Deploying a ProLiant ML/DL server using scripted installation

The details pane on the right side of the Deployment Server Console displays the status of the tasks that are occurring during the installation.

When the server deployment is complete, the server icon changes, depending on the server status. This server can now be used as your reference server for imaging deployment.

NOTE: The status of the job may change to **Complete** prior to the actual completion of the job. This is because there is no way to communicate the status of the installation during the operating system portion of the installation. When the installation is fully completed, the Deployment Agent is loaded on the target server and connects back to the Deployment Server automatically, displaying the blue server icon. Only then can you visibly confirm that the deployment is complete.

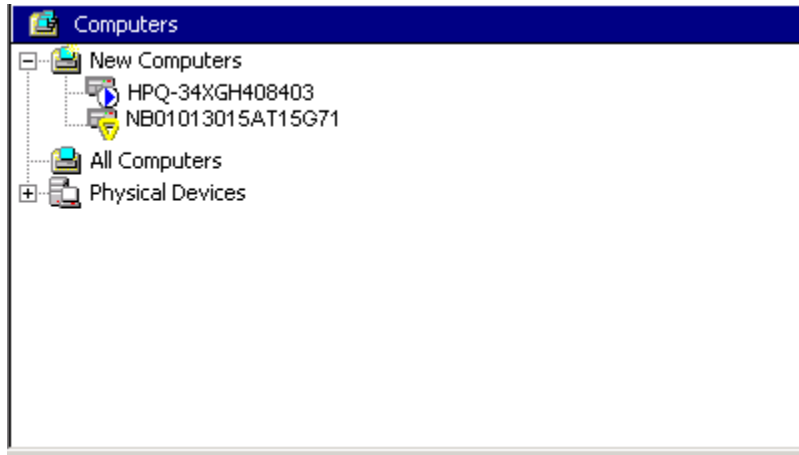


Figure 4-12: Server deployment completed

Image Deployment for ProLiant ML/DL Servers

To deploy a ProLiant ML/DL server using imaging:

1. From the Deployment Server Console, select the Capture Hardware Configuration and Image job for the specific server model and operating system in the **Jobs** pane, and drag this icon to the reference server in the **Computers** pane.

NOTE: The jobs provided in the Rapid Deployment Pack create and deploy images using a predefined image name. If you use the provided jobs without modification, each time you capture a new image, it overwrites the previous image. If you want to capture different images for different server configurations, you should copy and rename the job and modify the hardware configuration and image file name variables within the job so that the files are saved to a unique name.

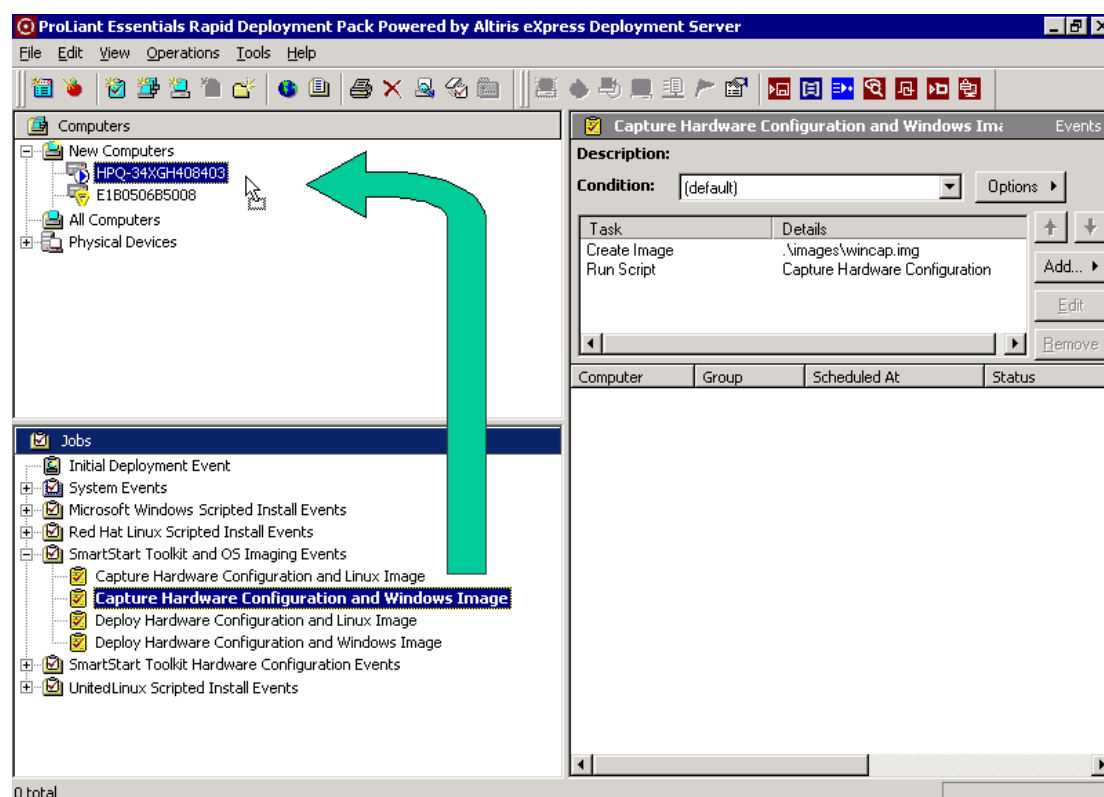


Figure 4-13: Capturing the hardware configuration and image

The computer performs any necessary pre-imaging tasks and reboots to perform imaging and hardware configuration capture.

- After image capture has completed, select the corresponding Deploy Hardware Configuration and Image job for the specific server model and operating system in the **Jobs** pane, and drag this job to the server to be deployed in the **Computers** pane.

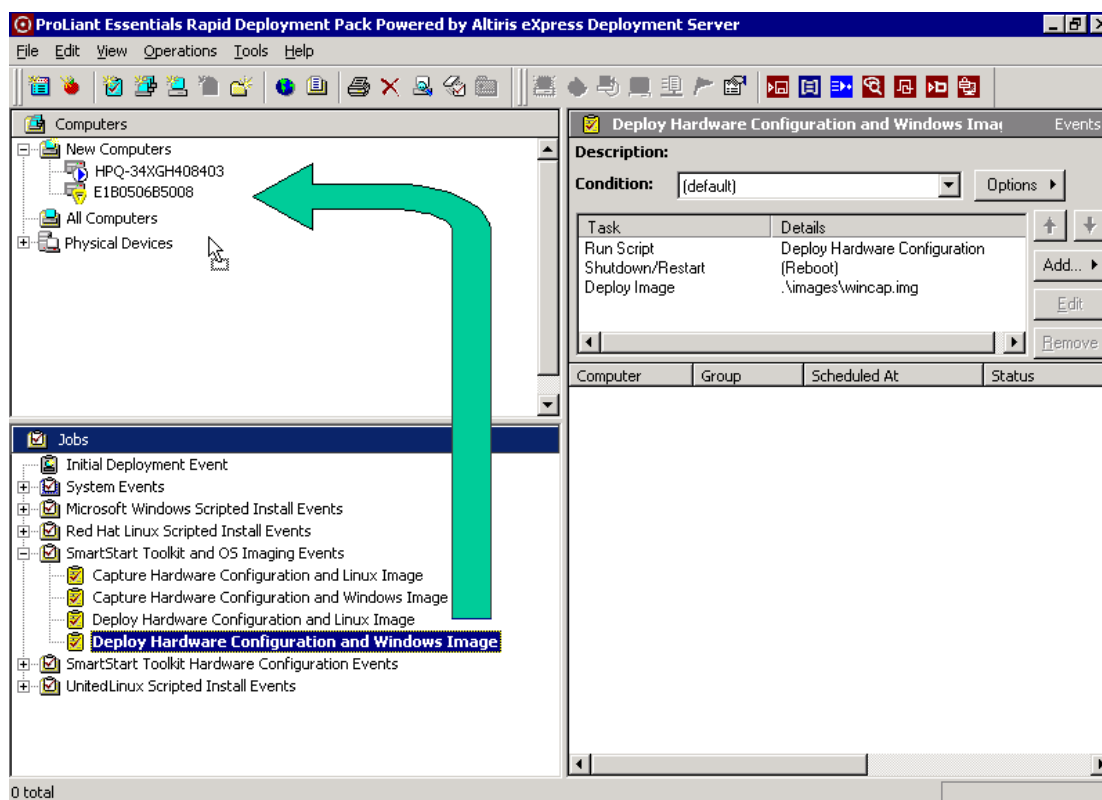


Figure 4-14: Deploying hardware configuration and image

The image of the reference server captured in step 1 is deployed to the selected server.

When the server deployment is complete, the server icons change, depending on the server status.

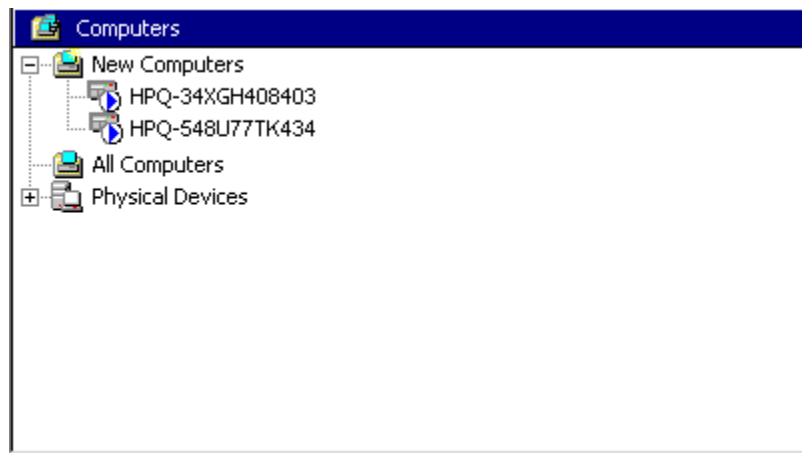


Figure 4-15: Server deployment completed

Customizing the Rapid Deployment Pack

Overview

There may come a time when the built-in functionality of the provided configuration jobs is either no longer appropriate or does not offer enough functionality for your particular configuration. At this point, you can begin to customize the jobs and add personalized variables to extend the capabilities of the initial set of tools. This chapter describes the different kinds of customization you can accomplish using the Deployment Server Console and the scripting capabilities of the SmartStart Scripting Toolkit.

This chapter includes the following topics:

- Customizing the Jobs Pane
- Customizing the Windows Scripted Install Jobs
- Customizing the Red Hat Linux Scripted Install Jobs
- Customizing the UnitedLinux Scripted Install Jobs
- Customizing the Packaged Cluster Deployment Jobs
- Customizing the SmartStart Toolkit and OS Imaging Jobs
- Customizing the SmartStart Toolkit Hardware Configuration Jobs

IMPORTANT: The following sections provide several specific examples of modifying the provided jobs for your own needs. It is recommended that you make copies of the jobs before editing them to ensure that a working copy exists in case you encounter a problem. To copy a job, right-click the job name and select **Copy**. At another location in the **Jobs** pane, right-click and select **Paste**.

NOTE: For detailed information about the customization features of the Deployment Server Console, refer to the *Altiris Deployment Solution 5.6 Product Guide*.

Customizing the Jobs Pane

The Deployment Server Console provides the user interface for managing and deploying servers.

The Deployment Server Console displays the **Jobs** pane, which is where all the jobs are categorized in a folder hierarchy. You can rearrange the folders and edit the jobs.

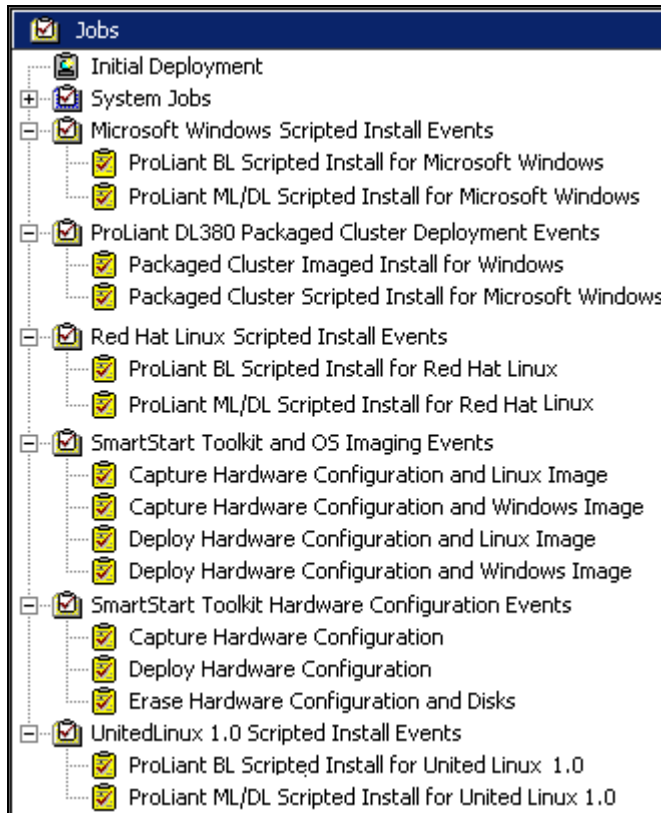


Figure 5-1: Jobs pane

Adding New Folders

To add a new folder:

1. Right-click in the **Jobs** pane header and select **New Folder**.
2. Enter a descriptive name for the new folder.
3. Press the **Enter** key.

Renaming Folders

To rename a folder:

1. Right-click the folder and select **Rename**, or select the folder and press the **F2** key.
2. Enter a descriptive name for the folder.
3. Press the **Enter** key.

Deleting Folders

To delete a folder:

1. Right-click the folder and select **Delete**.
2. Click **Yes** when prompted to confirm the action.

IMPORTANT: Deleting a folder deletes all jobs within that folder.

Moving a Folder

To move a folder:

1. Select the folder.
2. Drag and drop it onto another folder to make it a subfolder or onto the **Jobs** pane header to make it a top-level folder.

Copying a Job

To copy a job:

1. Right-click the job and select **Copy**.
2. Right-click another location in the **Jobs** pane, and select **Paste**.

IMPORTANT: The jobs in the Rapid Deployment Pack use long names to be descriptive. However, when attempting to copy these jobs, the name exceeds the 64-character limit of the Deployment Server Console and truncates because Altiris places **Copy of** in front of the job name.

Renaming a Job

To rename a job:

1. Right-click the job and select **Rename** or select the job and press the **F2** key.
2. Enter a descriptive name for the job.
3. Press the **Enter** key.

Adding a Job

To add a job:

1. Right-click in the **Jobs** pane header and select **New Job**.
2. Enter a descriptive name for the job.
3. Press the **Enter** key.

Deleting a Job

To delete a job:

1. Right-click the job and select **Delete**.
2. Click **Yes** when prompted to confirm the action.

Moving a Job

To move a job:

1. Select the job.
2. Drag and drop it onto another folder.

Customizing the Windows Scripted Install Jobs

Windows scripted install jobs are provided that configure the hardware and install the Windows operating system to enable out-of-the-box deployment of supported ProLiant servers.

A scripted install job consists of a set of tasks. The tasks either run a script or reboot the target server. The scripts call the batch files, passing variables that specify which configuration files to use.

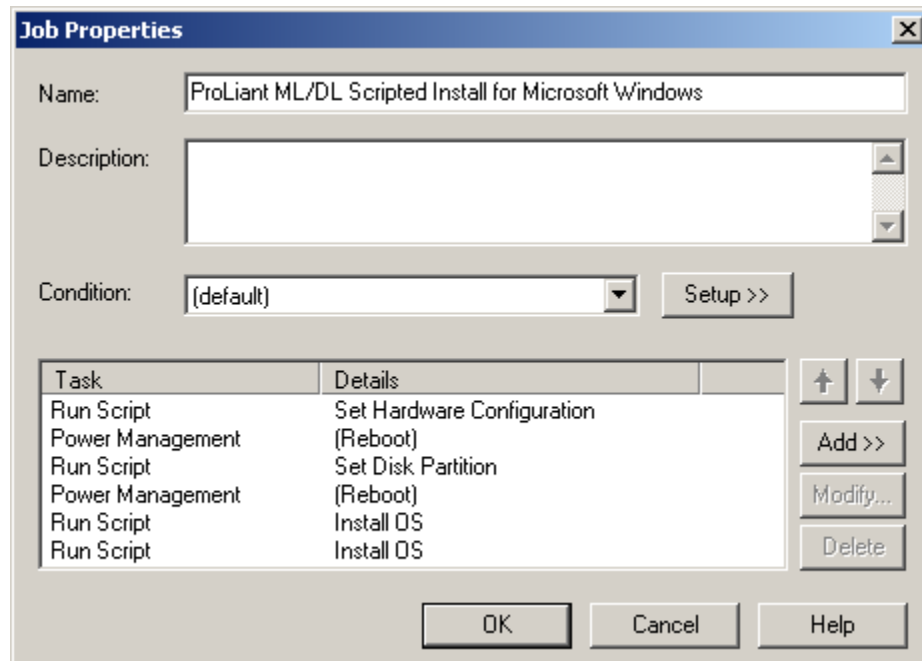


Figure 5-2: Windows scripted install job properties

Table 5-1 provides a breakdown of the ProLiant ML/DL scripted install for a Microsoft Windows job. Each bold line represents one of the tasks in the job. Under each script task is a condensed listing of the script and a description of its functionality. Details for modifying each of these variables follow this table.

Table 5-1: Contents of the Microsoft Windows Scripted Install Job

Run Script (Set Hardware Configuration)
<code>set osfile=w2k-h.ini</code>
<code>set hwrfile=mldl-h.ini</code>
<code>set aryfile=mldl-a.ini</code>
<code>call f:\deploy\tools\scripts\setcfg.bat</code> This external batch file sets the hardware and array configuration settings. First, it calls CONREP with the wk2-h.ini file to set the hardware operating system settings. Next, it calls CONREP with the mldl-h.ini file to set the rest of the hardware settings. Finally, it calls ACR with the mldl-a.ini file to set the array configuration settings.
Shutdown/Restart (Reboot)
Run Script (Set Disk Partition)
<code>set prtfile=w2k-p.ini</code>
<code>call f:\deploy\tools\scripts\setpart.bat</code> This external batch file sets the disk partition configuration settings. It calls CPQDISK with the wk2-p.ini file to set the disk partition settings.
Shutdown/Restart (Reboot)
Run Script (Install OS)
<code>set ss=ss.xxx</code> where xxx is the version of support files installed. For example, 640 represents version 6.40.
<code>set os=w2k</code>
<code>set unattendfile=w2k.txt</code>
<code>call f:\deploy\tools\scripts\w2k.bat</code> This external batch file prepares the target server for a Microsoft Windows scripted installation. First, it formats the hard drive. Next, it copies text mode drivers and the Support Pack for Windows. Finally, it copies the files over for the Altiris Deployment Agent for Windows. The ss variable is used to determine which flat file drivers and Support Pack to copy. The os variable is used to determine from which Microsoft Windows distribution to install. The unattendfile variable denotes which unattend.txt file to use.
Run Script (Install OS)
<code>winnt.exe</code> This script launches the Microsoft Windows installation program.

Using a Different Version of Microsoft Windows

To use a version of Microsoft Windows other than the version that was copied during the initial installation:

1. Create a new subdirectory in the `.deploy\cds\windows` directory. For example, to add Microsoft Windows 2000 Advanced Server, create a subdirectory named `w2kas`.

IMPORTANT: Directory names created for scripted installations must conform to the MS-DOS 8.3 naming convention, or the scripts do not function properly.

2. Copy the **i386** directory from the CD into the new subdirectory. Following the preceding example, you now have `.deploy\cds\windows\w2kas\i386`.
3. Copy and rename the Microsoft Windows Scripted Install job that you want to use as a base and rename it appropriately.
4. Select the new job.
5. Select the next-to-the-last task in the job (the first **Install OS** task).
6. Click **Edit**.
7. Change the `os=` variable to the name of your new subdirectory created in step 1.
8. Before the last line of text in the script, add the following text:

```
set ssos=w2k
```

Using a Different Version of the Microsoft Windows Support Files

After installing an updated version of the Rapid Deployment Pack, there is a new set of support files (Windows text mode drivers and Support Pack files). To make your existing jobs reference these newer files:

1. Select the job you want to modify.
2. Select the next-to-the-last task in the job (the first **Install OS** task).
3. Click **Edit**.
4. Change the `ss=` variable to `ss.xxx`, where `xxx` represents the new subdirectory in `.deploy\cds\compaq`.

Customizing the Microsoft Windows unattend.txt File

To customize the settings in the Microsoft Windows unattend.txt file:

1. Copy and rename the **w2k.txt** file in the .\deploy\configs directory.

NOTE: File names created for scripted installations must conform to the DOS 8.3 naming convention, or the scripts do not function properly.
2. Edit your copy. For more information about editing a Windows scripted install unattend.txt file, refer to the Windows 2000 online resource kit at <http://www.microsoft.com/windows2000/techinfo/reskit/en-us/default.asp>.
3. Copy and rename the Microsoft Windows Scripted Install job that you want to use as a base.
4. Select the new job.
5. Select the next to the last task in the job (the first **Install OS** task).
6. Click **Edit**.
7. Change the **unattendfile=** variable to specify the name of your new file.

If you plan to create several custom configurations, you may want to create subdirectories in the .\deploy\configs directory in which to place your customized files. To create and use these subdirectories:

1. Create a subdirectory in the .\deploy\configs directory (for example, w2kiis).
2. Follow the previous procedures with the following changes:
 - a. In step 1, copy the file into the newly created subdirectory.
 - b. In step 7, set the **unattendfile** variable to the relative path of your custom file (for example, set unattendfile=w2kiis\w2kiis.txt).

Customizing the Hardware Configuration Settings

IMPORTANT: The hardware configuration files are not operating system-specific. Both the Microsoft and Linux scripted install jobs use them. Changing the supplied files may have unwanted consequences.

To customize the hardware and array configuration settings:

1. Copy and rename the particular configuration file in the `.\deploy\configs` directory (mldl-h.ini, mldl-a.ini, bl10e-h.ini, and so on).

NOTE: File names created for scripted installations must conform to the MS-DOS 8.3 naming convention, or the scripts do not function properly.

2. Edit your copy. For information about editing configuration files, refer to the *SmartStart Scripting Toolkit User Guide* or to <http://www.hp.cpm/servers/sstoolkit>.

NOTE: Alternatively, you can use a file created with the Capture Hardware Configuration job or an existing SmartStart Scripting Toolkit file.

3. Copy and rename the Microsoft Windows Scripted Install job that you want to use as a base.
4. Select the new job.
5. Select the first task in the job.
6. Click **Edit**.
7. Change either the **hwrfile=** variable or the **aryfile=** variable to the name of your new file.

If you plan to create several custom configurations, you may want to create subdirectories in the `.\deploy\configs` directory in which to place your customized files. To create and use these subdirectories:

1. Create a subdirectory in the `.\deploy\configs` directory (for example, DL380G2).
2. Follow the previous procedures with the following changes:
 - a. In step 1, copy the particular configuration file into the newly created subdirectory.
 - b. In step 7, set the appropriate variable to the relative path of your custom file (for example, set **hwrfile=DL380G2\iis-h.ini**).

Customizing the Red Hat Linux Scripted Install Jobs

Red Hat Linux scripted install jobs are provided that configure the hardware and install a Red Hat Linux operating system to enable out-of-the-box deployment of supported ProLiant servers.

A scripted install job consists of a set of tasks. The tasks either run a script or reboot the target server. The scripts call batch files and pass variables that specify which configuration files to use.

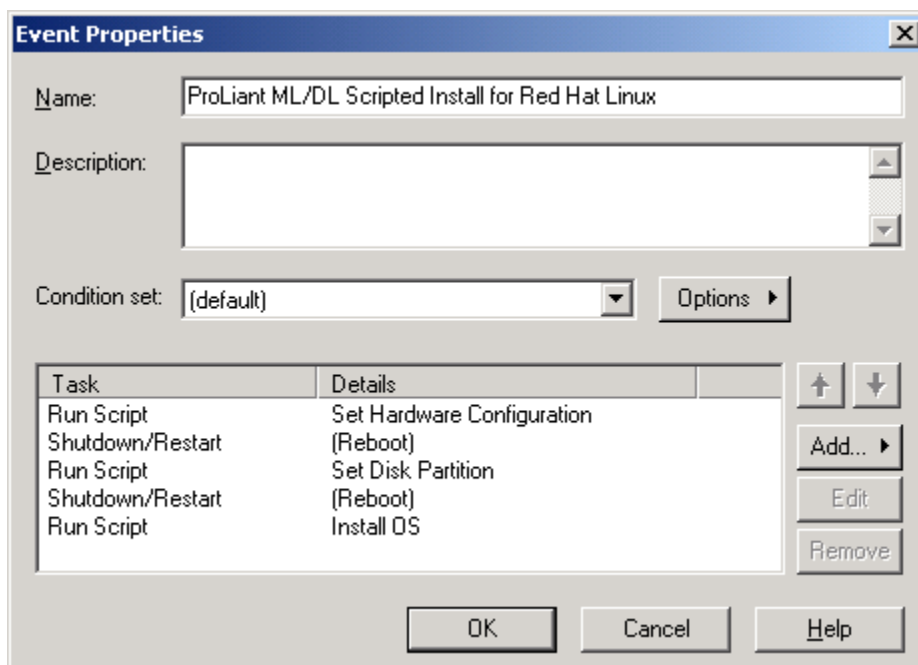


Figure 5-3: Red Hat Linux scripted install job properties

Table 5-2 provides a breakdown of a ProLiant ML/DL scripted install for a Red Hat Linux job. Each bold line represents one of the tasks in the job. Under each script task is a condensed listing of the script and description of its functionality. Details on modifying this job follow this table.

Table 5-2: Contents of the Red Hat Linux Scripted Install Job

Run Script (Set Hardware Configuration)
set osfile=linux-h.ini
set hwrfile=mldl-h.ini
set aryfile=mldl-a.ini
call f:\deploy\tools\scripts\setcfg.bat This external batch file sets the hardware and array configuration settings. First, it calls CONREP with the linux-h.ini file to set the hardware operating system settings. Next, it calls CONREP with the mldl-h.ini file to set the rest of the hardware settings. Finally, it calls ACR with the mldl-a.ini file to set the array configuration settings.
Shutdown/Restart (Reboot)
Run Script (Set Disk Partition)
set prtfile=linux-p.ini
call f:\deploy\tools\scripts\setpart.bat This external batch file sets the disk partition configuration settings. It calls CPQDISK with the linux-p.ini file to set the disk partition settings.
Shutdown/Restart (Reboot)
Run Script (Install OS)
set nfsserver=0.0.0.0
set os=rh99*
*In this table, Red Hat Linux 9.9, which is a non-valid version of the Red Hat Linux operating system, is used as a generic example to depict any version of a provided Red Hat Linux scripted install job.
set ss=ss.xxx where xxx is the version of support files installed. For example, 640 represents version 6.40.
set ksfile=ks.cfg
call f:\deploy\tools\scripts\rh99.bat This external batch file prepares the target server for a Red Hat Linux 9.9 scripted installation. First, it formats the hard drive. Next, it copies over Red Hat Linux 9.9 boot files. Finally, it creates an autoexec.bat file. The autoexec.bat file contains a line that executes loadlin, similar to the following line: loadlin vmlinuz ks=nfs:%nfsserver%:/usr/cpqrdp/%ss%/%os%/%ksfile% initrd=initrd.img The nfsserver variable is used to tell loadlin where to get the Kickstart file. The os and ss variables are used to determine the location of the boot files to copy and also combine to determine the location of the Kickstart file. The ksfile variable denotes the name of the ks.cfg to use.** **Additional command line parameters may be included to support specific console needs.

NOTE: Upon rebooting, the target server boots to the C drive and runs autoexec.bat, which loads the Linux setup kernel. This reboot begins the Linux NFS-based scripted installation.

Using a Different Version of the Red Hat Linux Support Files

After installing an updated version of the Rapid Deployment Pack on both the designated Linux NFS server and the Deployment Server, there is a new set of support files. To make your existing jobs reference the newer files:

In the Deployment Server Console:

1. Select the particular job.
2. Select the **Run Script—OS Install** task in the job.
3. Click **Edit**.
4. Change the **ss=** variable to **ss.xxx**, where *xxx* represents the new subdirectory and the new support file version on the Linux NFS server, for example `/usr/cpqrdp/ss.xxx`.

NOTE: This procedure changes the location from which your Kickstart files are copied. If you have custom Kickstart files, copy them from the old *ss.xxx* directory to the new *ss.xxx* directory.

Customizing the Red Hat Linux Kickstart *ks.cfg* File

To customize the settings in the Red Hat Linux Kickstart file:

On the Linux NFS server:

1. Copy and rename the particular Kickstart file (*ks.cfg*, *bl10e.ks.cfg*, and so on) in the `/usr/cpqrdp/ss.xxx/rhyy` directory, where *xxx* represents the version of the support files, and *yy* represents the version of Red Hat Linux currently installed.
2. Edit your copy. For information about editing Kickstart files, refer to the *Red Hat Linux Customization Guide*.

In the Deployment Server Console:

1. Copy and rename the Red Hat Linux scripted install job that you want to use as a base.
2. Select the new job.
3. Select the **Run Script—OS Install** task in the job.
4. Click **Edit**.
5. Change the **ksfile=** variable to specify the name of your new file.

If you plan to create several custom configurations, you may want to create subdirectories in the `/usr/cpqrdp/ss.xxx/rhyy` directory in which to place your customized files, where `xxx` represents the version of the support files you are currently using and `yy` represents the version of Red Hat Linux currently installed. To create and use these subdirectories:

1. Create a subdirectory in the `/usr/cpqrdp/ss.xxx/rhyy` directory, where `xxx` represents the version of the support files you are currently using and `yy` represents the version of Red Hat Linux currently installed (for example, create a directory named `DL380G2`).
2. Follow the previous procedures with the following changes:
 - a. In step 1 on the Linux NFS server, copy the particular configuration file into the newly created subdirectory.
 - b. In step 5 in the Deployment Server Console, set the **ksfile=** variable to the relative path of your custom file (for example, set `ksfile=DL380G2/DL380G2-ks.cfg`).

IMPORTANT: A forward slash (/) is used in this example because this file is being accessed from a Linux server.

NOTE: These files could be overwritten or removed during a Rapid Deployment Pack software upgrade or reinstallation on the NFS server.

Customizing the Hardware Configuration Settings

IMPORTANT: The hardware configuration files are not operating system-specific. Both the Microsoft and Linux scripted install jobs use them. Changing the supplied files may have unwanted consequences.

To customize the hardware and array configuration settings:

1. Copy and rename the particular configuration file in the `.\deploy\configs` directory (`mldl-h.ini`, `mldl-a.ini`, `bl10e-h.ini`, and so on).

NOTE: File names created for scripted installations must conform to the DOS 8.3 naming convention, or the scripts do not function properly.

2. Edit your copy. For information about editing configuration files, refer to the *SmartStart Scripting Toolkit User Guide* or to <http://www.hp.com/servers/sstoolkit>.

NOTE: Alternatively, you can use a file created with the Capture Hardware Configuration job or an existing SmartStart Toolkit file.

3. Copy and rename the Red Hat Linux scripted install job that you want to use as a base.
4. Select the new job.
5. Select the **Run Script—Set Hardware Configuration** task in the job.
6. Click **Edit**.
7. Change either the **hwrfile=** variable or the **aryfile=** variable to the name of your new file.

If you plan to create several custom configurations, you may want to create subdirectories in the `\deploy\configs` directory in which to place your customized files. To create and use these subdirectories:

1. Create a subdirectory in the `\deploy\configs` directory (for example, `DL380G2`).
2. Follow the previous procedures with the following changes:
 - a. In step 1, copy the particular configuration file into the newly created subdirectory.
 - b. In step 7, set the appropriate variable to the relative path of your custom file (for example, set `hwrfile=DL380G2\apache-h.ini`).

NOTE: A backward slash (`\`) is used in this example because this file is being accessed in MS-DOS.

Customizing the UnitedLinux Scripted Install Jobs

UnitedLinux scripted install jobs are provided that configure the hardware and install a UnitedLinux operating system to enable out-of-the-box deployment of supported ProLiant servers.

A scripted install job consists of a set of tasks. The tasks either run a script or reboot the target server. The scripts call batch files and pass variables that specify which configuration files to use.

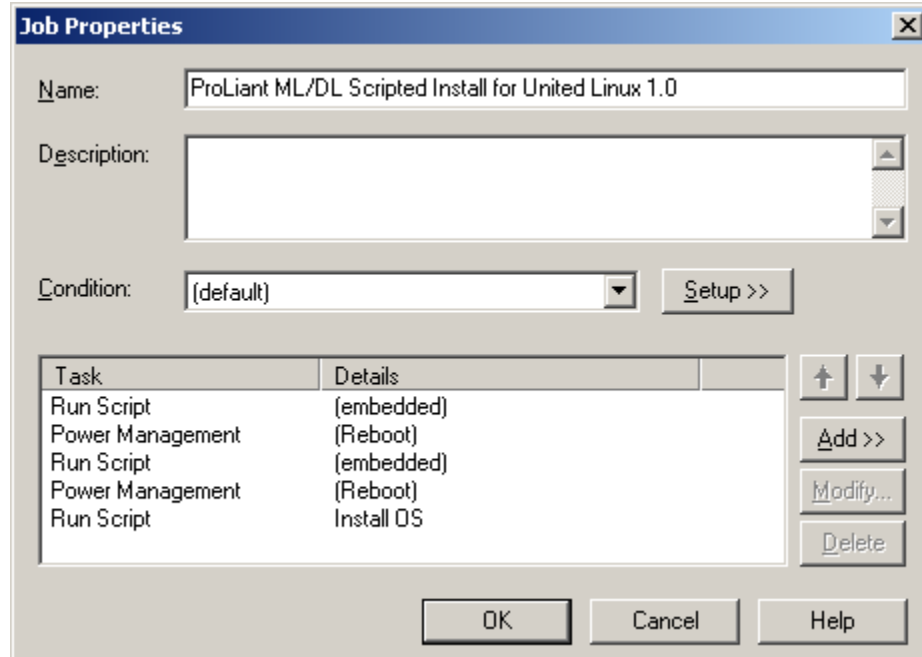


Figure 5-4: UnitedLinux scripted install job properties

Table 5-3 provides a breakdown of a ProLiant ML/DL scripted install for a UnitedLinux job. Each bold line represents one of the tasks in the job. Under each script task is a condensed listing of the script and description of its functionality. Details on modifying this job follow this table.

Table 5-3: Contents of the UnitedLinux Scripted Install Job

Run Script (Set Hardware Configuration)
set osfile=linux-h.ini
set hwrfile=mldl-h.ini
set aryfile=mldl-a.ini
call f:\deploy\tools\scripts\setcfg.bat This external batch file sets the hardware and array configuration settings. First, it calls CONREP with the linux-h.ini file to set the hardware operating system settings. Next, it calls CONREP with the mldl-h.ini file to set the rest of the hardware settings. Finally, it calls ACR with the mldl-a.ini file to set the array configuration settings.
Shutdown/Restart (Reboot)
Run Script (Set Disk Partition)
set prtfile=linux-p.ini
call f:\deploy\tools\scripts\setpart.bat This external batch file sets the disk partition configuration settings. It calls CPQDISK with the linux-p.ini file to set the disk partition settings.
Shutdown/Restart (Reboot)
Run Script (Install OS)
set nfsserver=0.0.0.0
set os=ul10*
*In this table, UnitedLinux 1.0 is used as a generic example to depict any version of a provided UnitedLinux scripted install job.
set ss=ss.xxx where xxx is the version of support files installed. For example, 640 represents version 6.40.
set ctlfile=mldl.xml
call f:\deploy\tools\scripts\ul10.bat This external batch file prepares the target server for a UnitedLinux 1.0 scripted installation. First, it formats the hard drive. Next, it copies over UnitedLinux 1.0 boot files. Finally, it creates an autoexec.bat file. The autoexec.bat file contains a line that executes loadlin. The nfsserver variable is used to tell loadlin where to get the control (.xml) and UnitedLinux 1.0 operating system files. The os and ss variables are used to determine the location of the boot files to copy and also combine to determine the location of the control file. The ctlfile variable denotes the name of the control (.xml) file to use.

NOTE: Upon rebooting, the target server boots to the C: drive and runs autoexec.bat, which loads the Linux installation kernel. This reboot begins the Linux NFS-based scripted installation.

Using a Different Version of the UnitedLinux Support Files

After installing an updated version of the Rapid Deployment Pack on both the designated Linux NFS server and the Deployment Server, there is a new set of support files. To make your existing jobs reference the newer files:

In the Deployment Server Console:

1. Select the particular job.
2. Select the last task in the job.
3. Click **Edit**.
4. Change the **ss=** variable to **ss.xxx**, where *xxx* represents the new subdirectory and the new support file version on the Linux NFS server, for example `usr/cpqrdp/ss.xxx`.

NOTE: This procedure changes the location from which your control files are copied. If you have custom control (*.xml) files, copy them from the old `ss.xxx/ul10/control` directory to the new `ss.xxx/ul10/control` directory.

Customizing the UnitedLinux control *.xml File

To customize the settings in the UnitedLinux control file:

On the Linux NFS server:

1. Copy and rename the particular control file (`mldl.xml`, `bl10e.xml`, and so on) in the `/usr/cpqrdp/ss.xxx/ulXX/control` directory, where *xxx* represents the version of the support files you are currently using, and *XX* represents the version of UnitedLinux currently installed.
2. Edit your copy. For information about editing AutoYast control (*.xml) files, refer to the AutoYast Guide at <http://www.suse.de/~nashif/autoinstall/index.html>

In the Deployment Server Console:

1. Copy and rename the UnitedLinux scripted install job that you want to use as a base.
2. Select the new job.
3. Select the last task in the job.
4. Click **Edit**.
5. Change the **ctlfile=** variable to specify the name of your new file.

If you plan to create several custom configurations, you may want to create subdirectories in the `/usr/cpqrdp/ss.xxx/ulXX/control` directory in which to place your customized files, where *xxx* represents the version of the support files you are currently using and *XX* represents the version of UnitedLinux currently installed. To create and use these subdirectories:

1. Create a subdirectory in the `/usr/cpqrdp/ss.xxx/ulXX/control` directory, where *xxx* represents the version of the support files you are currently using and *XX* represents the version of UnitedLinux currently installed (for example, `dl380g2`).

2. Follow the previous procedures with the following changes:
 - a. In step 1 on the Linux NFS server, copy the particular control file (*.xml) into the newly created subdirectory.
 - b. In step 5 in the Deployment Server Console, set the **ctlfile=** variable to the relative path of your custom file (for example, set **ctlfile=dl380g2/dl380g2.xml**).

IMPORTANT: A forward slash (/) is used in this example because this file is being accessed from a Linux server.

NOTE: These files could be overwritten or removed during a Rapid Deployment Pack software upgrade or reinstallation on the NFS server.

Customizing the Hardware Configuration Settings

IMPORTANT: The hardware configuration files are not operating system-specific. Both the Microsoft and Linux scripted install jobs use them. Changing the supplied files may have unwanted consequences.

To customize the hardware and array configuration settings:

1. Copy and rename the particular configuration file in the `.deploy\configs` directory (`mldl-h.ini`, `mldl-a.ini`, `bl10e-h.ini`, and so on).

NOTE: File names created for scripted installations must conform to the DOS 8.3 naming convention, or the scripts do not function properly.

2. Edit your copy. For information about editing configuration files, refer to the *SmartStart Scripting Toolkit User Guide* or to <http://www.hp.com/servers/sstoolkit>.

NOTE: Alternatively, you can use a file created with the Capture Hardware Configuration job or an existing SmartStart Toolkit file.

3. Copy and rename the Red Hat Linux scripted install job that you want to use as a base.
4. Select the new job.
5. Select the first task in the job.
6. Click **Edit**.
7. Change either the **hwrfile=** variable or the **aryfile=** variable to the name of your new file.

If you plan to create several custom configurations, you may want to create subdirectories in the `.\deploy\configs` directory in which to place your customized files. To create and use these subdirectories:

1. Create a subdirectory in the `.\deploy\configs` directory (for example, `DL380G2`).
2. Follow the previous procedures with the following changes:
 - a. In step 1, copy the particular configuration file into the newly created subdirectory.
 - b. In step 7, set the appropriate variable to the relative path of your custom file (for example, set `hwrfile=DL380G2\apache-h.ini`).

NOTE: A backward slash (`\`) is used in this example because this file is being accessed in DOS.

Customizing the Packaged Cluster Deployment Jobs

Packaged cluster deployment jobs are provided that can be used to configure the hardware, operating system, and shared storage necessary for a ProLiant DL380 G2/G3 Packaged Cluster.

Customizing the Array Configuration

The default array configuration file for the shared storage provided with the ProLiant Integration Module creates the following configuration in the Smart Array Cluster Storage:

Table 5-4: Default Array Configuration

Disk Number	1 2 3 4 5 6 7 8 9 10 11 12 13 14
	X X X X X X X X X X X X X X
Array Members	^--^
Array	A
Logical Drive 1	RAID 1+0 510 MB
Logical Drive 2	RAID 1+0 Remaining Disk Space

To specify a custom array configuration file for cluster deployments, complete the following steps to configure the storage and capture the hardware configuration using the Rapid Deployment Pack.

1. Manually configure the arrays and logical drives in the Smart Array Cluster Storage using the Array Configuration Utility.
2. Drop the Capture Hardware Configuration job in the **SmartStart Toolkit Hardware Configuration Events** folder on the server connected to the storage.
3. After the event completes, locate the default file created by the event, `cpqcap-a.ini`, in the `.\deploy\configs` directory on the Deployment Server. Rename this file.

4. Edit this renamed file by removing all of the array information for the internal storage, denoted by the following header:


```
;Controller Specifications
;Controller Smart Array 5i
```
5. Close and save this file in the `.deploy\configs\clusters` directory on the Deployment Server.
6. On the Deployment Server, make a copy of the packaged cluster deployment job to be used to deploy this custom storage configuration.
7. Rename this job to indicate the storage configuration being deployed.
8. In this new job, open the **Run-Script—Setup Deployment Environment**. Update the **storagefile** variable with the name of the new array configuration file.

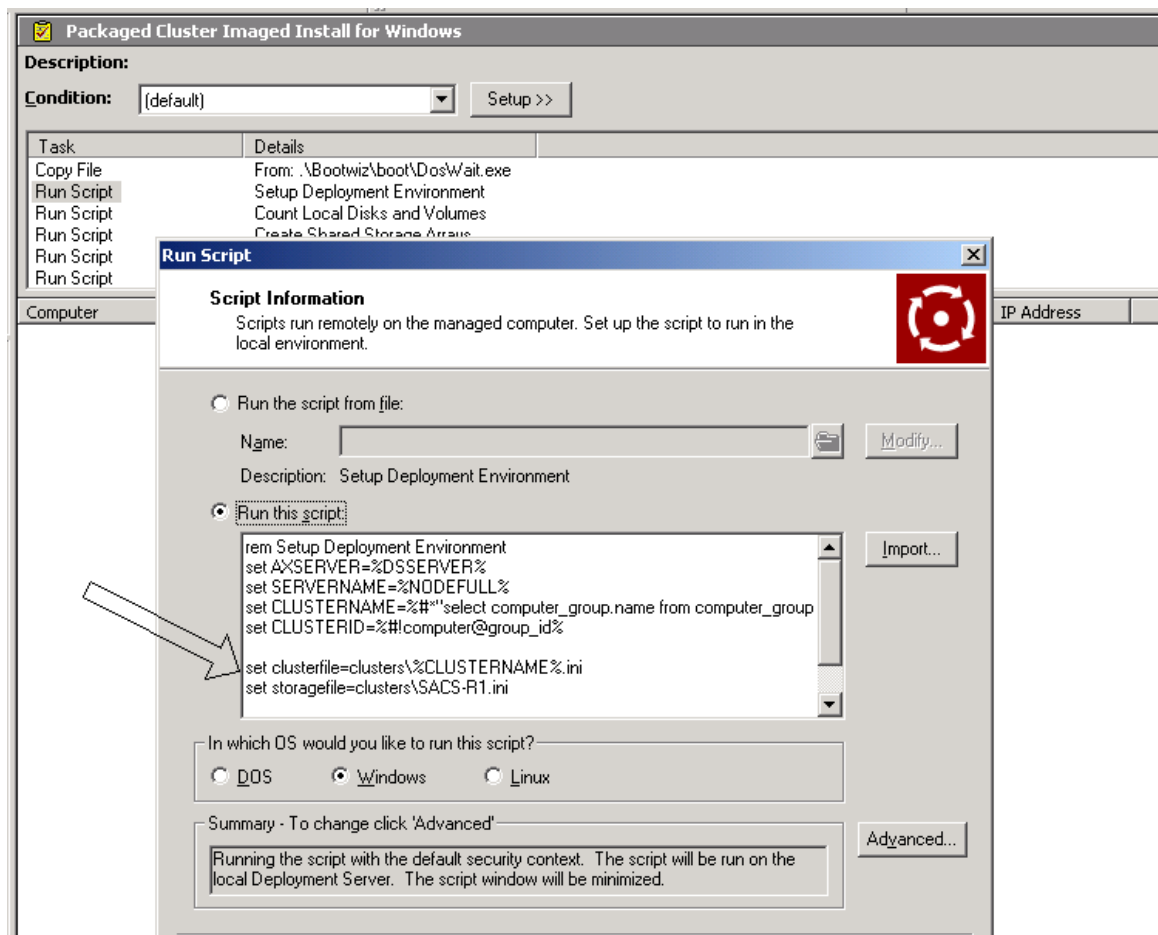


Figure 5-5: Package cluster job properties

NOTE: If this file is located in a directory other than `.configs\cluster`, specify that directory in the `set` statement as well. For example, if there is a subdirectory of the cluster directory named `Chicago`, and the shared storage array configuration file `exch-R5.ini` was stored in this subdirectory, the `set` statement would be:

```
set storagefile=clusters\Chicago\exch-R5.ini
```

Customizing the SmartStart Toolkit and OS Imaging Jobs

Hardware configuration and imaging jobs are provided to capture an exact copy of an existing server hardware configuration and hard drive and to deploy this copy to similar ProLiant servers.

IMPORTANT: Replication is only recommended for ProLiant servers of the same model.

The Capture jobs capture the hardware configuration into files in the `\deploy\configs` directory. The files are `wincap-h.ini` and `wincap-a.ini` for Windows and `lnxcap-h.ini` and `lnxcap-a.ini` for Linux. The `-h` files are the CONREP (BIOS configuration) files and the `-a` files are the ACR (array configuration) files. The jobs capture the disk image into files in the `\images` directory. The files are `wincap.img` for Windows and `lnxcap.img` for Linux.

The corresponding Deploy jobs use the same set of files for deployment.

Creating a Custom Pair of Windows or Linux Capture and Deploy Jobs

Copy and rename both the Capture job and the Deploy job.

IMPORTANT: In the following procedures, be sure that you use the same values in like fields for both the Capture and Deploy jobs.

To modify the Capture job:

1. Select the job.
2. Select the **Run Script—Capture Hardware Configuration** task in the job.
3. Click **Edit**.
4. Change the value of both the **hwrfile=** variable and the **aryfile=** variable.
5. Select the **Create Image** task in the job.
6. Click **Edit**.
7. Change the value in the **Image Filename** field.

To modify the Deploy job:

1. Select the job.
2. Select the **Run Script—Deploy Hardware Configuration** task in the job.
3. Click **Edit**.
4. Change the value of both the **hwrfile=** variable and the **aryfile=** variable.
5. Select the **Deploy Image** task in the job.
6. Click **Edit**.
7. Change the value in the **Filename** field.

Customizing the SmartStart Toolkit Hardware Configuration Jobs

Hardware configuration jobs are provided to capture an exact copy of an existing server hardware configuration and deploy this copy to other supported ProLiant servers.

IMPORTANT: Replication is only recommended for ProLiant servers of the same model.

The Capture job captures the hardware configuration into files in the `.deploy\configs` directory. The files are `cpqcap-h.ini` and `cpqcap-a.ini`. The `-h` file is the CONREP (BIOS configuration) file and the `-a` file is the ACR (array configuration) file.

The corresponding Deploy job uses the same set of files for deployment.

Creating a Custom Pair of Capture and Deploy Jobs

Copy and rename both the Capture Hardware Configuration job and the Deploy Hardware Configuration job.

For each of the new jobs:

1. Select the job.
2. Select the **Run Script** first task, either **Run Script—Capture Hardware Configuration** or **Run Script—Deploy Hardware Configuration**.
3. Click **Edit**.
4. Change the value of both the **hwrfile=** variable and the **aryfile=** variable. Be sure that you use the same values in both the Capture job and Deploy job.

If you plan to create many pairs of custom jobs, you may want to have subdirectories in the `.\\deploy\\configs` directory in which to place your custom jobs. To create and use a subdirectory:

1. Create a subdirectory in the `.\\deploy\\configs` directory (for example, `DL380G2`).
2. Follow the previous procedures with the following change—In step 4, for both the Capture job and Deploy job, set each variable to the relative path of your custom file (for example, set `hwrfile=DL380G2\\websvr-h.ini`).

Knowledge Base

This appendix provides answers to frequently asked questions, basic information about known troubleshooting issues, and instructions needed to perform basic tasks using the Rapid Deployment Pack. This information is organized according to the following topics.

- Installation
- Licensing
- Deployment Server Console
- Hardware
- Networking—General
- Networking—PXE
- Jobs—General
- Jobs—Scripting
- Jobs—Imaging
- Security
- Support

Installation

The following section includes topics related to software installation.

Can Rapid Deployment Pack Be Installed from a Terminal Services Client?

No, the Microsoft Data Engine (MSDE) component of the Altiris eXpress Deployment Solution cannot be installed from a Terminal Services client.

Can Rapid Deployment Pack and Insight Manager 7 Be Installed on the Same Server?

Yes, Rapid Deployment Pack and Insight Manager 7 can share a database service (MSDE, Microsoft SQL Server 7.0, or Microsoft SQL Server 2000) because each uses unique tables, resulting in no conflict. However, if a large network is managed with many managed servers, it is best to install each service on separate servers to avoid network traffic and processor usage on a single server.

No “sync” or “async” Message Displays During the ProLiant Integration Module for NFS Installation on a Red Hat Linux 8.0 Server

In Red Hat Linux releases prior to Red Hat Linux 8.0, an older version of nfs-utils was used that defaults this option to “async.” Red Hat Linux 8.0 uses a newer release of nfs-utils that has changed the default option to “sync,” with “async” needing to be explicitly requested. The No “sync” or “async” warning message received when setup-pimnfs.sh calls the command exportsfs and no “sync” or “async” option is indicated in /etc/exports is a reminder from Linux that the default option has changed with the newer nfs-utils version.

How to Setup a Linux NFS Server

To install Linux on target servers using a scripted install job, the ProLiant Integration Module for NFS Server must be installed on an operational Linux NFS server. A single NFS server can be used for multiple Linux distributions.

To Create a Red Hat Linux NFS Server:

1. Be sure that the hardware meets the minimum requirements.
2. Boot the first Red Hat distribution CD.
3. Follow the on-screen installation instructions, noting the following setup options.
 - a. At the **Installation Settings** screen, select **File and Print Server** (NFS, Samba, Cups).
 - b. At the **Installation Type** screen, select **Server**.
 - c. At the **Network Configuration** screen, be sure to enter the correct DNS domain name.
 - d. At the **Firewall Configuration** screen, select **No Firewall**. If a firewall is required, enable the appropriate ports for NFS.
 - e. At the **Package Group Selection** screen, select the NFS server configuration tool. The tool name may differ among versions of Red Hat Linux.
4. Insert the Rapid Deployment Pack CD, and install the ProLiant Integration Module for NFS Server.

To Create a UnitedLinux NFS Server

1. Be sure that the hardware meets the minimum requirements.
2. Boot the first UnitedLinux distribution CD.
3. Follow the on-screen installation instructions, noting the following setup options.
 - a. Verify the software **File and Print Server** (NFS, Samba, Cups) is included.
 - b. Verify that no firewall will be installed. However, if a firewall is required then enable the appropriate ports for NFS.
4. Insert the Rapid Deployment Pack CD, and install the ProLiant Integration Module for NFS Server.

Licensing

The following section includes topics related to licensing.

Can Licenses Be Shared Between Multiple Deployment Servers?

No, at this time it is not possible to dynamically allocate licenses between multiple Deployment Servers.

Licenses are applied on a Deployment Server basis and reside on the Deployment Server, not on the managed server. If you have multiple Deployment Servers, calculate how many managed computers each Deployment Server maintains, and apply the appropriate number of licenses to each Deployment Server using the Product Licensing Utility.

Is a New License Required for Every ProLiant BL Server Replaced Using the Rip-and-Replace Procedure?

When a ProLiant BL server is installed using the Rip-and-Replace procedure, into a bay where an existing licensed ProLiant BL server was managed, the replacement server automatically utilizes the original server license for user convenience. However, to be legally licensed, a separate license must be purchased for each server deployed, which would include those servers in the spares pool.

Can Several Rapid Deployment Pack License Files Be Combined into One File?

Yes, license files can be combined using the Altiris License Transfer form. For more information, refer to: <http://www.hp.com/servers/rdp/register>.

Can I Use my Existing Altiris Licenses with the Rapid Deployment Pack?

No, new licenses must be purchased from HP. Rapid Deployment Pack server licenses will be identified as “server” licenses in the Deployment Server Console.

Jobs Fail with “This Product is Not Licensed or the License has Expired”

To resolve this issue, reset the date and time on the target server to be consistent with the Deployment Server. This issue only occurs when using evaluation licenses.

Deployment Server Console

The following section includes topics related to the Altiris eXpress Deployment Server Console.

How Does the Display or Console Name in the Deployment Server Console Work and How Does it Relate to the Actual Server Name?

When a server connects to the Deployment Server for the first time, either by way of PXE or a boot diskette, it is added to the **New Computers** group. The initial computer name is based on the **Primary Lookup Key**. The Primary Lookup Key could be defined as the MAC Address, Serial Number, UUID, or Asset Tag. For ProLiant BL servers, the initial name is the concatenation of the Rack name, Enclosure name, and Bay number. For example, UnnamedRack-HP-1.

When a server connects to the Deployment Server for the first time by way of the Deployment Agent for Windows or Linux, it is added to the **New Computers** group. If the server is running Windows, the initial computer name is not the actual computer name as defined by the operating system. If the server is running Linux, the initial computer name is the actual hostname.

If the initial display name is edited before deploying an operating system to the new server, and the **Synchronize the Display Name with the Windows Computer Name** option is not enabled, the display name does not change after the deployment is complete. The **Synchronize the Display Name with Windows Computer Name** option only affects target servers running a Windows operating system.

If the initial display name is not edited or the **Synchronize the Display Name with the Windows Computer Name** option is enabled, the display name changes to the actual computer name or hostname after the deployment is complete.

If the new server is deployed using one of the provided Windows scripted installation jobs, the server name is **HPQ-xxxxxxx**, where **xxxxxxx** is a random eight-character alphanumeric name assigned by the Windows installation process.

If the new server is deployed with a Windows image and no name is manually specified in the job, the server name is set to the last 15 characters of the display name. This is to ensure that the name is NETBIOS compatible. On blades, the truncation process can lead to noncompliant NETBIOS names in Rapid Deployment Pack 1.30 and earlier.

Can I Remotely Manage a Deployment Server?

Yes, using Microsoft Terminal Services in Administrator mode, the Deployment Server can be remotely managed and server deployments can even be performed.

Is the Altiris Deployment Agent on my Desktop Different than the Deployment Agent on my Server?

No, the Altiris Deployment Agent is the same for desktops and servers.

New Servers Appear Under “All Computers” Instead of “New Computers”

If a server is deleted from the console and then immediately powered on so it PXE-boots to the Deployment Server, the server may appear under **All Computers** instead of **New Computers**. This is because the Altiris PXE service maintains a cache of data to speed communication with PXE clients. The PXE service may not be able to clear the cache fast enough to clear a deleted server from its list of known computers. The PXE service therefore recognizes the server as an existing server instead of a new one.

To resolve this issue, use one of the following two methods:

- Wait a few minutes before powering the deleted server back on.
- Before powering on the deleted server, clear the PXE service cache by restarting the PXE service in the Windows Service Control panel.
- Drag and drop the new computer from **All Computers** to **New Computers**.

The RILOE Power Control Commands Do Not Work

To resolve this issue, upgrade the firmware of the RILOE to version 2.40 or later. For firmware downloads and documentation, refer to: <http://www.hp.com/servers/lights-out>.

A ProLiant BL Server Fails to Connect to the Deployment Server With “Unable to Connect to Deployment Server”

If two enclosures exist on the same network with the same rack and enclosure names and blades populating the same bay numbers in each enclosure, the Deployment Server cannot determine which blade it should be communicating with and refuses the connection for the second blade.

To resolve this issue, rename one of the enclosures to something different than the other enclosure, and reboot the blades in the modified enclosure.

The Deployment Server Console Shows Multiple Racks and Enclosures When Only One Rack or Enclosure Exists on the Network

The Deployment Server Console reads the rack, enclosure, and bay information for each blade from the SMBIOS table, which is configured each time the blade is rebooted. If the blade is booted before the rack and enclosure names are configured, it uses the factory default settings.

After changing the rack and enclosure names and rebooting the blades, they are displayed under the new rack and enclosure names in the Physical View. However, the old rack and enclosure names also remain.

The old rack and enclosure names are still displayed because the Deployment Server Console does not know that the old rack and enclosure names no longer exist, just that the blade has moved to a new rack and enclosure. There is no communication directly between the Deployment Server and the rack or enclosure, only through the blades.

To resolve this issue, manually delete old rack and enclosure names that are not needed.

Rack and Enclosure Names in Physical View Do Not Reflect the True Rack and Enclosure Names

The Deployment Server reads the rack, enclosure, and bay information for each blade from the SMBIOS table, which is configured each time the blade is booted. Changes made to the rack and enclosure name do not take effect until the blade is rebooted and SMBIOS can be refreshed.

To resolve this issue, reboot the blade.

Unexpected Servers Appear in the Deployment Server Console

Some Deployment Agents are configured to broadcast a multicast message to discover the nearest Deployment Server. Since this is a broadcast message, every Deployment Server with a network route to the target server sees the message and adds the server to the Deployment Server Console.

To resolve this issue, use one of the two following methods:

- Configure the Deployment Agents to connect to the Deployment Server using its static IP address instead, and configure the Deployment Server to not accept multicast requests from the Deployment Agents.
- Configure each Deployment Server and its associated Deployment Agents to use a different multicast address.

Hardware

The following section includes topics related to server hardware.

Certain ProLiant Servers Stop at the F1 Prompt During POST

ProLiant servers using RBSU 1.0 or earlier (System Config-based systems) do not allow the ability to bypass the **F1** prompt when the server is unconfigured.

To resolve this issue during a PXE-based boot, use RILOE, iLO, or the local console to press the **F1** key. To resolve this issue during a diskette-based boot, use the SIGNDISK utility in the SmartStart Scripting Toolkit.

Custom Smart Array Configuration File Fails To Deploy

Custom array configuration files must be captured in the manner described in the Rapid Deployment Pack documentation. Manually edited Smart Array Cluster configuration files are not supported. Also, the number of disks, disk size, and location of the disks in the Smart Array Cluster storage used to capture the array configuration file must be the same as the target storage device.

How To Enable the iLO Virtual Floppy Under Linux

To use the iLO virtual floppy under Linux on ProLiant BL p-class servers:

1. Connect the virtual floppy using the iLO Web interface.
2. To mount the virtual floppy, enter:

```
mount /mnt/vfloppy (Red Hat Linux)
```

or

```
mount /media/vfloppy (UnitedLinux)
```

3. To access the virtual floppy, enter:

```
cd /mnt/vfloppy (Red Hat Linux)
```

or

```
cd /media/vfloppy (UnitedLinux)
```

4. To unmount the virtual floppy when finished, enter:

```
umount /mnt/vfloppy (Red Hat Linux)
```

or

```
umount /media/vfloppy (UnitedLinux)
```

To enable the iLO virtual floppy under Linux on ProLiant ML servers and ProLiant DL servers with the iLO Advanced Pack, uncomment the vfloppy section within the appropriate Kickstart file for Red Hat Linux or control file for UnitedLinux before performing a Linux scripted installation.

Networking—General

The following section includes general networking topics.

NIC Teaming or Windows Load Balancing Causes Jobs to Fail or Not to Work as Expected

If the first NIC in the server is not the NIC used for PXE or DOS-based connections to the Deployment Server, then in NIC Teaming or Windows Load Balancing situations, it is possible that the IP address and MAC address reported to the Deployment Server by the Deployment Agent for DOS (Bootworks) are different than the addresses reported by the Deployment Agent for Windows or Linux. This causes confusion between the Deployment Server and the target server because the Deployment Server cannot recognize that the two different addresses are actually the same target server.

To resolve this issue, either:

- Set the **Primary Lookup Key** to a setting other than the MAC Address, or
- Use the first NIC in the server for PXE or DOS-based connections to the Deployment Server

Extremely Slow Transfer Rates (Less than 10 MB/sec) Occur During Imaging

If an NDIS2 driver is used in the PXE images or boot diskettes and the network is set to anything other than auto-negotiate for speed and duplex settings (for example, the network is set to force 100 MB and Full Duplex), transfer rates for imaging may be extremely slow. This is because the default settings of the NDIS2 driver are to auto-negotiate for speed and duplex.

To resolve this issue, force the speed and duplex settings for the NDIS2 driver by modifying protocol.ini.

1. Start **Boot Disk Creator** from the Deployment Server Console by selecting **Tools>Boot Disk Creator**.
2. At the intended boot disk/PXE image configuration, double-click the configuration name to expand the selection.
3. Expand the **Net** folder and select the protocol.ini file. The file contents display in the right-side pane.

4. For the N100 driver (HP Ethernet or Fast Ethernet driver), locate the section titled [cpq\$N100_nif] and insert the appropriate text for the configuration:
 - For 100-MB forced speed type:
SPEED=100
 - For 10-MB forced speed type:
SPEED=10
 - For forced Full Duplex type:
FORCEDUPLEX=2
 - For forced Half Duplex type:
FORCEDUPLEX=1
5. For the Q57 driver (HP NC67xx/NC77xx Gigabit Ethernet driver), locate the section titled [Q57] and insert the appropriate text for the configuration:
 - a. For 1000-MB forced speed type:
LineSpeed=1000
 - For 100-MB forced speed type:
LineSpeed=100
 - For 10-MB forced speed type:
LineSpeed=10
 - For forced Full Duplex type:
Duplex=full
 - For forced Half Duplex type:
Duplex=half

NOTE: Altiris recommends using Half Duplex even in a forced Full Duplex network.

6. Save the changes by clicking **File>Save Text File**.
7. Regenerate the boot diskettes or PXE images as appropriate.

IMPORTANT: The Deployment Server network card should be set to the same speed and duplex settings as target servers and the routers or switches. A Deployment Server that is not properly configured may cause slow transfer rates even when the target server is configured correctly.

Cluster Nodes Report Duplicate IP Addresses in the Event Log

The script called to create or join the cluster in the Packaged Cluster deployment jobs reset the IP address of the private NIC in each cluster node. During deployment, the private NIC on the secondary node can temporarily be assigned the same IP address as the primary node. This is resolved when the secondary node joins the cluster and will not affect cluster functionality.

The Linux NFS Server Drops Its Network Connection

The Linux NFS server may drop its network connection on ProLiant servers using an Intel-based NIC and the `eeepro100` driver (the default driver loaded by Linux).

To resolve this issue, use the `e100` driver instead of the `eeepro100` driver:

1. Open `/etc/modules.conf` in a text editor.
2. Change all occurrences of `eeepro100` to `e100`.
3. Reboot the server.

NOTE: These instructions assume that you have installed the `e100` driver for the appropriate kernel.

How To Activate Wake-On-LAN on ProLiant Servers

The Altiris eXpress Deployment Solution can activate a server using Wake-On-LAN (WOL) or RILOE. If RILOE is not installed in the server, WOL is an option for powering on the server. Many ProLiant servers come with WOL capabilities on the embedded NIC, but some have WOL disabled by default.

NOTE: For WOL to power on a server, the server must have been powered on at least once before, and communication must have existed between the Deployment Server and the target server or a virtual computer must have been created with the target server MAC address.

To activate WOL, determine which utility is used to configure the server and follow the directions for that utility.

Table A-1: Activating WOL

ProLiant Server	System Configuration Utility	ROM-Based Setup Utility 1.0	ROM-Based Setup Utility 2.0
ProLiant DL360 servers and other G1 ML/DL servers	X		
ProLiant DL320 servers		X	
ProLiant ML/DL G2 servers			X
ProLiant BL servers			X

System Configuration Utility Directions

1. Press the **F10** key during system POST to run the System Configuration Utility.
2. At the HP logo screen, press any key to continue.
3. At the **Main Menu** screen, press the **CTRL+A** keys to enable the advanced mode.
4. Select **System Configuration**, and press the **Enter** key.
5. Select **Hardware Configuration**, and press the **Enter** key.
6. Press the **Enter** key to continue through the **Configuration Changes** screen.
7. Select **Review or modify hardware settings**, and press the **Enter** key.
8. Select **Step 3: View or edit details**, and press the **Enter** key.
9. Select **Wake On LAN** in the **Advanced Settings** section, and press the **Enter** key.
10. Modify the setting as appropriate using the up or down arrow keys, and press the **Enter** key.
11. Press the **F10** key to exit this screen.
12. Select **Step 5: Save and exit**, and press the **Enter** key.
13. Select **Save the configuration and restart the computer**, and press the **Enter** key.

ROM-Based Setup Utility 1.0 and 2.0 Directions

1. Press the **F9** key when prompted during the system POST to run RBSU.
2. Select **Advanced Options**, and press the **Enter** key.
3. Select **Wake On LAN**, and press the **Enter** key.
4. Modify the setting as appropriate using the up or down arrow keys, and press the **Enter** key.
5. Press the **Esc** key to close the **Advanced Settings** menu.
6. Press the **Esc** key to exit RBSU.
7. Press the **F10** key to save changes and exit.

The Integrated Administrator Does Not Display the Operating System Name

In order for the Integrated Administrator to display the operating system name (Windows or Linux network name), the HP System Management driver must be loaded.

To resolve this issue, install the HP System Management driver.

Networking—PXE

The following section includes PXE networking topics.

What are the Prerequisites for Using PXE in my Network?

The following items are the prerequisites for PXE in an enterprise network environment:

- DHCP services must be available for each of the target servers to allow the PXE client to get an IP address during the bootstrap process. The deployment process can easily assign static IP addresses for the target operating system, so DHCP is only used during the deployment process.

NOTE: The DHCP server **must** be set up and running before installing the Altiris eXpress Deployment Solution so that the install can correctly configure the PXE services.

NOTE: If the Altiris installation detects DHCP services are installed on the PXE server, it configures PXE to work with the local DHCP server. If DHCP will not be run on the same server as the PXE server, uninstall DHCP from the PXE server **before** installing PXE; disabling DHCP is **not** good enough.

- IP address helpers on the switches/routers or DHCP proxy servers on each broadcast domain are required to forward DHCP and PXE requests to the DHCP server and the PXE server.

NOTE: If DHCP and PXE are running on separate servers, two IP addresses must exist as specified in your IP Address Helper or DHCP Proxy. This is required because DHCP requests from the PXE client must reach both the DHCP and the PXE server.

- Each target server that deploys using PXE needs a PXE capable NIC. The PXE server does not require a PXE enabled NIC to provide PXE services.

NOTE: For information about which ProLiant servers and stand-up NICs support PXE, refer to the *HP ProLiant Essentials Rapid Deployment Pack Support Matrix*.

- Switches must be configured to allow Multicast (MTFTP) (ports 1758 and 1759) for PXE boot file transfer between the PXE clients and the PXE server. If MTFTP is not desired, the PXE Configuration Utility can be used to select TFTP (port 69) instead of MTFTP (uncheck the **Use Multicast for Boot File Transfer** box on the **Multicast** tab).

- Switches must be configured to activate the ports for servers that boot PXE as soon as a link is detected. There are negotiation protocols such as Spanning Tree Protocol (STP), EtherChannel Protocol, and Port Aggregation Protocol (PAgP) that delay the activation of switch ports after a link is detected. This delay can be longer than the standard PXE Client timeout, in which case, the PXE boot fails.
 - For Cisco switches, the PortFast option must be enabled to cause the port to be activated immediately. For some Cisco 28xx series switches, the PortHost option must also be set.
 - If using EtherChannel or PAgP, set the port to manual mode, to avoid longer delays associated with auto mode.
 - Switches designed for the ProLiant BL enclosures are configured to support PXE on the ports for blade servers by default, however most enterprise switches enable Spanning Tree Protocol on all ports by default.

What are the Security Considerations when Using PXE?

Because PXE is a relatively new protocol to be used in data center environments, there is a need to understand the security implications of PXE implementation. This section lists some areas of concern and features of Rapid Deployment Pack or the network setup that counter the security concern.

- There is no packet encryption of messages between the PXE server, DHCP Server, and the PXE client. All messages are UDP or TFTP.
 - Passwords used to connect back to the Deployment Server share from the boot images are stored in an encrypted file.
- There is no authentication of PXE server by PXE client, so the client is subject to server spoofing.
 - The PXE specification includes Boot Integrity Services (BIS) in an attempt to address this issue, however this is not a 100% solution and requires manual intervention at the PXE client before it can boot. Thus BIS would actually eliminate some of the benefits of PXE, so BIS is not implemented on ProLiant servers.
 - Spoofing the PXE server only has an effect within a single broadcast domain, as the DHCP Proxies or IP Helper Addresses across the network are configured to point back to the PXE server.
 - Since PXE is last in the boot order by default, ProLiant servers only boot to PXE when instructed by the Deployment Server. This minimizes the exposure to client server spoofing.

- DHCP is required to support PXE, since some enterprise environments do not currently include DHCP services; some are concerned with security implications. Some general recommendations for DHCP setup addressing these concerns are:
 - Setup DHCP to only allow a few addresses in the pool. Leases should be of a short duration and non-renewable.
 - Setup network switches and firewalls to block the dynamic addresses from external access.
 - Monitor the DHCP provided IP addresses using your network security monitoring tools.

Which ProLiant Servers and Stand-up NICs Support PXE?

For information about which ProLiant servers and stand-up NICs support PXE and other deployment bootstrap mechanisms, refer to the *HP ProLiant Essentials Rapid Deployment Pack Support Matrix*.

Are there Alternatives to Using PXE with the Rapid Deployment Pack?

Yes. PXE provides the most convenient, remote, hands-off way to boot servers, and enables serviceability features like blade server Rip and Replace, but there are other methods to bootstrap the server deployment process:

- Bootworks diskettes, easily created using the Altiris Boot Disk Creator, can be placed in a server's disk drive.
- Bootworks diskettes can be used remotely with the iLO or RILOE virtual floppy feature.
- A Bootworks partition can be setup on the target server. A Bootworks partition is not recommended for initial server deployment for the following reasons:
 - This requires custom jobs for scripted server deployment since the jobs provided with Rapid Deployment Pack clear the hard drive before installing the operating system.
 - Installing a Bootworks partition before the target operating system requires three floppy diskettes instead of the single Bootworks diskette required to deploy the server. A Bootworks partition can be added to the system to support redeployment after the operating system is installed through the Altiris Deployment Agent.

For information about which ProLiant servers support PXE and other deployment bootstrap mechanisms, refer to the *HP ProLiant Essentials Rapid Deployment Pack Support Matrix*.

Why is PXE Last in the Default Boot Order on ProLiant Servers?

With the exception of the ProLiant DL320 server and ProLiant DL360 server, all ProLiant servers that support PXE place PXE last in the boot order (after the floppy, CD-ROM, and hard drive). This order can be changed. However HP recommends considering the following factors before changing the placement of PXE in the boot order:

- Placing PXE before the hard drive forces the server to attempt a PXE boot on every reboot. This increases the boot time and causes unnecessary network traffic to attempt PXE boot.
- Some PXE implementations indiscriminately initiate deployment operations to every computer that boots PXE. Placing PXE first in the boot order may accidentally initiate redeployment of a production server.
- The Altiris Deployment Agent has the ability to set a special BIOS option to force a ProLiant to boot PXE. This option is automatically set when a deployment task requires a PXE boot. This makes setting PXE first in the boot order unnecessary.
- While these mechanisms are generally not needed when using the Rapid Deployment Pack, there are other ways to force a ProLiant to boot PXE when needed, including:
 - Pressing the **F12** key at the appropriate point in the boot sequence
 - Running the SETBOOT utility under DOS in the SmartStart Scripting Toolkit (not necessary with Remote Deployment Pack, since the Altiris Deployment Agent forces a PXE boot when required)
 - Running the bootcfg utility under Linux (not necessary with Remote Deployment Pack, since the Altiris Deployment Agent forces a PXE boot when required)

IMPORTANT: Never change the boot order of the **Menu Items** listed under the **Boot Configuration** tab of the PXE Configuration Utility. This will not impact the server boot order, but causes problems with the ability of the PXE server to select the correct boot image.

Can I Use PXE with DHCP and Continue to Use Static IP Addresses for My Servers?

Yes, the DHCP address used during the PXE process is only for bootstrap purposes. When the target operating system is installed, it can easily be configured to use a static IP address for normal operation.

Can I Use Two PXE Servers on the Same Subnet?

Yes, however, HP does not recommend this configuration. This configuration requires the use of the Altiris **MAC Address Filtering** feature to specify to which MAC addresses each of the PXE servers should respond. This requires that each MAC address be entered into the Altiris PXE Configuration Utility, which places an undue burden on the deployment process by requiring additional data entry with the possibility of entry errors causing deployment failure.

PXE Boot Fails with “PXE-E51: No DHCP or Proxy DHCP Offers were Received”

This message indicates that the PXE client was unable to get a DHCP address.

To resolve this issue, check each of following network configuration items:

- DHCP services are not available on the network to which the PXE enabled NIC is connected.
- A DHCP proxy or IP helper address is not configured for the subnet on which the PXE client is connected.

NOTE: To determine if DHCP services are available on a given subnet, use the Altiris Boot Disk Creator utility to create a network boot diskette that uses DHCP, and boot a server with this diskette.

- The switch port connected to the PXE NIC is running Spanning Tree Protocol, EtherChannel Protocol, or Port Aggregation Protocol and is thus not activated immediately when a link is detected. This forces the DHCP request from the PXE client to timeout.

For more information, refer to the “What are the Prerequisites for Using PXE in my Network?” entry.

PXE Boot Fails with “PXE-E53: No Boot Filename Received”

This message indicates that the PXE client was able to get a DHCP address, but did not get a response with a boot file name from a PXE server. Note that the PXE client uses messages that use the DHCP packet format to communicate with the PXE server to get the boot filename.

To resolve this issue, check each of following network configuration items:

- When the DHCP service and PXE service are running on different systems, all DHCP packets must be forwarded to both the DHCP server and the PXE server for a successful PXE boot. To do this, make sure the DHCP Proxy or IP Helper Address has two addresses defined, one for the computer running PXE services, and one for the computer running DHCP services.
- If the Microsoft DHCP services are installed on the PXE server, but are disabled or unconfigured, Altiris PXE Setup configures PXE to work with the local DHCP service (even if the DHCP service is disabled). This causes the PXE server to not respond to PXE clients that get a DHCP address from DHCP services running elsewhere on the network.

To correctly configure PXE to work with DHCP services running on another computer, remove Microsoft DHCP services from the PXE server and reinstall PXE.

For more information, refer to the “What are the Prerequisites for Using PXE in my Network?” entry.

PXE Boot Fails with “PXE-E32: TFTP Open Timeout”

This message indicates that the PXE client was able to get a DHCP address and a boot file name, but timed out when attempting to download the boot file using TFTP or MTFTP.

To resolve this issue, check each of following network configuration items:

- This message is sometimes displayed, and the operation is retried, allowing for a successful download of the boot image. The message `Transferring control to DOS boot diskette image...` indicates that the boot file was successfully downloaded and the PXE boot has succeeded. In this case, no action is needed to correct the problem.
- By default, the Altiris PXE server is configured to use multicast TFTP. If multicast is disabled by the switches in the environment, either enable multicast (ports 1758 and 1759) or change the configuration of the PXE server to use regular TFTP (port 69).

For more information, refer to the “What are the Prerequisites for Using PXE in my Network?” entry.

Server Continuously Reboots the Production Operating System when Trying to Run a DOS-Based Deployment Task

This problem occurs when a job with a task that runs under DOS is scheduled. To execute this task, the Altiris Deployment Agent forces a reboot of the production operating system to PXE. If the PXE boot fails, the server boots back to the production operating system. The Altiris Deployment Agent then determines that a DOS task is scheduled and attempts to boot PXE again, thus the cycle repeats.

This issue is resolved with Rapid Deployment Pack 1.40 and target servers running Windows. A Windows server attempts two PXE boots, and then fails the job. Target servers running Linux continuously reboot as with earlier releases.

To resolve this issue, observe the messages displayed as the server boots:

- If the server does not attempt to boot PXE, the HP System Management driver is most likely not installed. This driver must be installed, as it is used by the Altiris Deployment Agent to force a reboot to PXE when running a production operating system. To get the server out of the reboot cycle delete the job from the Deployment Server, then install the HP System Management driver on the target server.
- If the server attempts to boot PXE, watch for error messages from the PXE client that indicate the source of the problem. Refer to the appropriate troubleshooting topic for the message that is displayed.

Older ProLiant Servers with Stand-up PXE NICs Does Not Boot to PXE When a Bootable Partition Exists on the Hard Drive

Some older ProLiant servers that support stand-up PXE NICs do not support the ability to force a one-time boot to PXE. Newer ProLiant servers provide this one time boot feature, which is used by the Altiris agent under DOS, Windows, and Linux to force the server to boot PXE when appropriate.

When an active partition is created on a hard drive, it is recognized by the System ROM as a bootable device even if a valid operating system has not been installed. If the PXE NIC is after the hard drive in the boot order, the hard drive tries to boot before PXE, which results in an Invalid System Partition error.

To resolve this issue, use one of the two following methods:

- Create the partition as an inactive (non-bootable) partition. Reboot and format the partition, setting the partition to active (bootable) as the last step before rebooting. An example of this solution can be seen in the scripted install jobs provided by the Rapid Deployment Pack.
- Place PXE before the hard drive in the boot order.

Target Servers Display “COMMAND.COM Not Found” When Booting 2.88-MB PXE Images

This error is caused by a known issue when using 2.88-MB PXE images based on Win95a DOS. This version of DOS is not compatible with 2.88-MB images.

To resolve this issue use either of the following solutions:

- Use a later version of Windows 95 or Windows 98 as the DOS file source.
- Do not use the 2.88-MB image option when creating PXE images based on Windows 95a.

Target Servers Display a PXE Boot Menu that Includes “Remote Install Linux” Instead of the Usual Rapid Deployment Pack Options

The standard Linux PXE server provides a boot menu with the following options:

```
Local Boot
Remote Install Linux
```

This indicates there is a Linux PXE server on the network.

To resolve this issue, either disable the Linux PXE server, or configure your network to route PXE requests from various subnets to the appropriate PXE server.

Target Server Displays “Not Enough Memory” During a Windows 2000 Server or Windows Server 2003 Scripted Install

This error occurs on newer ProLiant servers with Broadcom NICs using PXE firmware older than version 3.1.15 and/or Q57.DOS NDIS2 drivers older than version 3.07.

The newer versions of the PXE firmware and NDIS 2 driver use less base memory, so scripted installs complete successfully.

Cluster Nodes Cannot PXE Boot

PXE is only enabled by default on NIC1 for ProLiant DL380 G2 and G3 servers. Ensure that NIC2 in each node is cabled as the heartbeat/cluster interconnect, and that NIC1 in each node is cabled as the public network (visible to the Deployment Server).

This configuration is recommended for Packaged Clusters using the Rapid Deployment Pack and PXE, even though this is contradictory to the information provided in the Packaged Cluster documentation.

How to Determine the IP Address of a PXE Server on the Network

To determine the IP address of a PXE server, simply boot a PXE-capable computer, and observe the messages displayed just above the PXE boot menu. Watch for a message similar to the following:

```
CLIENT MAC ADDR:  nn nn nn nn nn nn
GUID:  nnnnnnnn-nnnn-nnnn-nnnn-nnnnnnnnnnnn
CLIENT IP:  www.www.www.www  MASK:  xxx.xxx.xxx.xxx
DHCP IP:  yyy.yyy.yyy.yyy  PROXY IP:  zzz.zzz.zzz.zzz
```

where:

www.www.www.www is the DHCP address assigned to the PXE client

xxx.xxx.xxx.xxx is the network mask set by the DHCP server

yyy.yyy.yyy.yyy is the IP Address of the DHCP server

zzz.zzz.zzz.zzz is the IP Address of the DHCP proxy server (if it exists) or the PXE server

How to Enable PXE Support on the ProLiant DL320 Server

The ProLiant DL320 server allows a connection to a PXE server by means of an embedded NIC. The server defaults to disabling PXE support on the embedded NIC.

To enable PXE support:

1. Press the **F9** key when prompted during the system POST to run RBSU.
2. Select **Advanced Options**, and press the **Enter** key.
3. Select **PXE Options**, and press the **Enter** key.
4. Select **Embedded PXE Support**, and press the **Enter** key.
5. Change the option to **Enabled**.

6. Select **User Interface**, and press the **Enter** key.
7. Change the option to **Disabled** to cause the server to automatically boot to the network instead of requiring pressing the **F12** key.
8. Press the **Esc** key to exit RBSU.
9. Press the **F10** key to save changes and exit.

NOTE: The server does not display the **F12** prompt when PXE is disabled, regardless of the setting for **User Interface**.

How to Enable PXE Support on the ProLiant DL360 Server

The ProLiant DL360 server allows a connection to a PXE server by means of embedded NICs. The server defaults to disabling PXE support on the embedded NICs.

PXE support on the ProLiant DL360 server requires a system ROM (P21) dated later than 08/03/2001 and version 2.53 or later of the System Configuration Utility.

PXE support can be enabled for either of the embedded NICs. However, PXE support cannot be enabled for both NICs at the same time. Enable PXE support for the NIC connected to the network containing the PXE server.

To enable PXE support:

1. Press the **F10** key during system POST to run the System Configuration Utility.
2. At the HP logo screen, press any key to continue.
3. Select **System Configuration**, and press the **Enter** key.
4. Select **Hardware Configuration**, and press the **Enter** key.
5. Press the **Enter** key to continue through the **Configuration Changes** screen.
6. Select **Review or modify hardware settings**, and press the **Enter** key.
7. Select **Step 3: View or edit details**, and press the **Enter** key.
8. Press the **F10** key to exit this screen.
9. Select **Step 5: Save and exit**, and press the **Enter** key.
10. Select **Save the configuration and restart the computer**, and press the **Enter** key.

NOTE: Unlike the ProLiant DL320 server, the ProLiant DL360 server always attempts to boot from the network. The only way to modify the default boot order is by using the stbtordr.exe utility found in the SmartStart Scripting Toolkit. PXE boot order is not configurable through the System Configuration Utility.

Jobs—General

The following section includes general topics related to jobs.

Initial Deployment Does Not Automatically Execute for New Computers or New Computers Booting PXE Do Not Appear in the Deployment Server Console

When a new server is installed and powered on, it boots to the PXE menu, stops at the Initial Deployment choice, and waits for interaction, rather than automatically running the Initial Deployment.

To resolve this issue using the PXE Configuration Utility, set the **Initial Deployment** PXE boot menu option to **Execute Immediately**.

The Deploy Hardware Configuration Job Fails on the Shutdown/Restart Task

On servers with array controllers, the Deploy Hardware Configuration job effectively clears the array configuration. This results in the servers having no bootable partitions. The Deployment Agent for DOS expects to boot to a partition after completion of the final reboot. When a bootable partition does not exist on the hard drive, the final reboot fails with the following message:

```
Error 2 during restart task
```

The server continues to boot to PXE (assuming an appropriate PXE configuration exists) until a new job is scheduled.

To resolve this issue, schedule a job that installs an operating system on the server.

Change Configuration Task that Sets a Static IP Address Never Completes

Upon completing a job, the Deployment Agent notifies the Deployment Server. If the job contains a Change Configuration task that reconfigures the server with a static IP address, it is possible that the Deployment Agent won't be able to notify the Deployment Server upon job completion. This is because a network route between the new static IP address and the Deployment Server does not exist.

To resolve this issue, be sure that the new static IP address has a network route to the Deployment Server.

Windows-Based Run Script Task Fails Because of Incorrect Permissions

The embedded script or external batch file of a Run Script task executes on the target server with Local System account permissions. If the script performs an operation such as accessing a network share, it fails because the local system account does not have the appropriate permissions.

To resolve this issue, provide a user name and password for the task that does have the correct permissions. On the Run Script dialog, click **Advanced**. Under **Security Context**, select the **Enter User Name and Password** option and then enter the appropriate name and password.

Packaged Cluster Deployment Job Stalls on the Secondary Node During a Reboot

If the secondary node successfully completes the Deploy Shared Partitions task, but pauses on the following Power Management Task, right-click on the failed job in the **Computers** pane, or on the computer in the **Jobs** pane, and select **Retry Task**. This forces the computer to execute the stalled reboot task.

Cluster Nodes Stall in DOS Waiting for the Primary Node

Intermittently an error occurs when determining the node roles for Packaged Cluster deployment (primary or secondary). This prevents either node from being assigned the primary node role and both nodes act as the secondary. To resolve this problem, restart the Packaged Cluster deployment job used.

Packaged Cluster Deployment Job Fails with “Error 116: Unable to Boot this Client into Automation for BootWorks”

Occasionally a Windows task is followed by a DOS task in the Packaged Cluster deployment job and the following error message is reported:

Unable to boot this client into automation for BootWorks. Check your BootWorks partition or PXE configuration.

When this occurs, right-click on the failed job in the **Computers** pane (or on the computer in the **Jobs** pane) and select **Retry Task**.

Cluster Deployment Jobs Stall at the Create/Join Cluster Task on the Secondary Node

The Packaged Cluster deployment jobs for Windows (imaged and scripted) require a domain administrator level username and password for the Create/Join Cluster task. In Windows 2000 deployments, the job pauses during the Create/Join cluster Task waiting for a valid user name, domain, and password in order to join the cluster.

On the Deployment Server, cancel the Packaged Cluster deployment job. Using a remote management technology such as iLO, RILOE or Terminal Services, cancel the cluster installation on the cluster node. Update the Create/Join Cluster task in the Packaged Cluster deployment job with a valid user name, domain, and password by using the **Advanced** button in the task. Retry the task on the failed node.

A Warning Message Displays on the Target Console After Deploying Linux Stating that Two Processors Were Detected But Only One Is Being Used

After performing an erase on a ProLiant DL380 server, a ProLiant DL580 server, ProLiant ML370 server, ProLiant ML530 server, or a ProLiant ML570 server, you are prompted to select the operating system for which to configure the server during the next POST. If you select an operating system other than UnixWare and then Linux, a server with two processors may not be configured to use both processors in the operating system, regardless of using the Symmetric Multiprocessing (SMP) kernel.

To resolve this issue, when prompted during POST, select **UnixWare** and then **Linux** as the operating system.

The Operating System Fails To Load After Being Deployed to RBSU 1.0-Based ProLiant ML/DL Servers That Have Been Erased

After performing an erase on a ProLiant DL 580 server, ProLiant ML 370 server, ProLiant DL 380 server, or ProLiant ML 570 server, you are prompted to select the operating system for which to configure the server during the next POST. If you select an operating system different than the one that is deployed, the server hangs at the first operating system boot because the system BIOS settings are not correct.

To resolve this issue, when prompted during POST to select an operating system, select the same operating system that will be deployed.

Bootwork.exe Fails to Load on Servers with 4-GB or More of Memory

The 4-GB memory boundary is special because to some DOS programs, such as emm386.exe, it appears as if there is no memory at all.

To resolve this issue, in **Boot Disk Creator**, REM out the emm386.exe statement in the config.sys file for all applicable configurations and regenerate the PXE images or boot diskettes.

NOTE: The emm386.exe statement is commented out by default

“Out of Memory” Displays When Running a DOS-Embedded Script or Batch File

This error is caused by one of the following:

- When a DOS-embedded script or batch file is executed, the Bootworks program is loaded in a DOS command shell and the commands are executed within that environment.

To resolve this issue, use the REM BOOTWORK UNLOAD statement within the embedded script or batch file. This statement causes Bootworks to unload from memory freeing up approximately 80 KB. After the embedded script or batch file ends, Bootworks reloads and task processing continues.

- Some DOS programs, such as Windows 2003 winnt.exe, have a large memory footprint. Systems with Broadcom-based NICs and older PXE firmware do not have enough available memory to run the program.

To resolve this issue, update the system ROM and/or NIC option ROM to version 3.1.15 of the PXE firmware or use the Broadcom Q57.DOS NDIS2 driver version 3.07 or later.

DOS Environment Variables Are Not Carried Over to the Next Task in the Job

When a DOS embedded script or batch file is executed, the Bootworks program is loaded in a DOS command shell and the commands are executed within that environment. When the task ends, so does the Bootworks environment causing the loss of the variables defined within the task.

To resolve this issue, use the REM BOOTWORK UNLOAD statement within the embedded script or batch file. This statement causes Bootworks to unload from memory thus allowing execution within a normal DOS environment.

“Bad Command or File Name” Displays or Script Stops with an A:\> Prompt When Running a DOS-Embedded Script or Batch File

There are many reasons why this error may occur. Some possible reasons are:

- The Deployment Server hostname cannot be resolved because either there is no WINS service or no entry in the LMHOST file.
- The Deployment Server and target server are on different subnets and no network route exists between them.
- The permissions on the eXpress share on the Deployment Server changed and the default account no longer has access rights.
- You are using a non-default account in the PXE images or boot diskettes to access the eXpress share on the Deployment Server and it either doesn't have the correct permissions or has the **User must change password at next logon** option selected.

Jobs—Scripting

The following section includes topics related to scripted installation jobs.

Can I Use My Existing Scripting Solution Within the Rapid Deployment Pack?

Yes, you should be able to use your existing scripting solution as long as the required file paths are mapped in the PXE images or boot diskettes and all permissions are correct.

Why is the Job Called “Red Hat Linux Advanced Server 2.1 Scripted Install Events” When Red Hat Has Changed the Name to “Red Hat Enterprise Linux AS?”

Red Hat changed the name of Red Hat Linux Advanced Server to Red Hat Enterprise Linux 2.1. This includes the AS, ES, and WS product family. This change occurred after HP shipped several releases of Rapid Deployment Pack. Rapid Deployment Pack has kept the same job names for Red Hat Enterprise Linux AS to update the support pack variables appropriately when a Rapid Deployment Pack upgrade is performed.

CONREP Data Files Captured Using the Rapid Deployment Pack 1.22 or Earlier (SmartStart Scripting Toolkit 1.9 or Earlier) Fail With the Rapid Deployment Pack 1.30 (SmartStart Scripting Toolkit 2.0)

CONREP data files captured using a version of CONREP from the SmartStart Scripting Toolkit 1.9 or earlier that contain lines of the form “PCI_Device=value” cannot be processed by the new version of CONREP. The new version of CONREP fails with a syntax error because the older version did not capture enough information to correctly set the IRQ settings.

To resolve this issue, use one of the two following methods:

- If the specific IRQ settings of the PCI devices are not a concern, delete those lines from the data file.
- If the IRQ settings need to be set correctly, recapture the data file using the new version of CONREP.

The Utilities in the SmartStart Scripting Toolkit Truncate Output File Names to 8.3

The utilities in the SmartStart Scripting Toolkit are DOS programs and thus only use 8.3 file names.

To resolve this issue, use 8.3 compliant names for the output files.

Performing a Windows 2000 Scripted Install to a ProLiant DL320 Server (IDE Model) Causes an “Inaccessible Boot Device” Blue Screen

The ProLiant DL320 with an IDE controller does not require an IDE driver when installing Windows 2000 because an appropriate driver already exists on the base media. The provided UNATTEND.TXT file (W2K.TXT) contains a statement that attempts to load the MegaIDE driver. On the ProLiant DL320, the driver binds with the IDE controller, preventing the correct IDE driver from loading. Because this is actually an incompatible IDE driver, the system stops functioning and displays a blue screen and an INACCESSIBLE BOOT DEVICE error message. This does not cause problems on other IDE systems.

To resolve this issue, a ProLiant DL320-specific UNATTEND.TXT file (DL320IDE W2K.TXT) is provided that can be used instead of the default W2K.TXT file. To use the supplied file, copy the file to an 8.3-compliant file name. Create a copy of the provided Windows 2000 scripted install job and modify the variable pointing to the W2K.TXT file to load the new file instead.

Windows Scripted Install Stops During the Blue Screen File Copy Phase

The target server may experience a file lockup during the blue screen file copy phase of the Windows unattended install when the target server is connected to the Deployment Server on a gigabit network. The following error message displays:

```
Unattended Windows installation: Setup was unable to copy the
following file: "misc.file"
Press ENTER to retry the copy operation.
Press ESC to ignore the error and continue Setup.
Press F3 to exit setup
```

To resolve this issue, either:

- Press the **Enter** key several times until the file copy succeeds, or
- On the Deployment Server, change the **Offload Transmit TCP Checksum** setting for the gigabit NIC to **Off**.

Windows 2000 Scripted Install Stops and Prompts for the cpqarray.sys File

The installation process stops and displays the following message:

```
The file 'cpqarray.sys' on windows driver cabinet is needed.
Type the path where the file is located, and then click OK.
```

This is caused by using a “slipstream” version of Windows. A “slipstream” version is a version in which a service pack has been integrated into the base media.

To resolve this issue, use the original version of Windows 2000 and apply any service packs after the installation of the operating system.

Windows Scripted Install Stops and Prompts For an Activation Key

The provided UNATTEND.TXT files assume that the Microsoft Select license is being used for installation. The Select license does not require a product key during installation.

To resolve this issue, add your product key to the appropriate UNATTEND.TXT file.

Windows 2000 Scripted Install, Using a Slipstream Service Pack 2 Version, Pauses at the Logon Banner

Some companies institute domain security policies that enable a logon banner, or an extra dialog box that displays between the execution of the **Ctrl+Alt+Delete** keys and the login dialog box. This logon banner causes a scripted install using a slipstream Windows 2000 with Service Pack 2 to pause at the dialog box and wait for interaction.

To resolve this issue, use one of the two following methods:

- Use a non-slipstreamed version of Windows 2000 and apply any service packs later.
- Do not add the server into the domain during the scripted installation.

NICs Assigned a Static IP Address Convert to DHCP After a Windows 2000 Scripted Install

NOTE: For related information, refer to the Microsoft Knowledge Base Article found at: <http://support.microsoft.com/default.aspx?scid=kb:en-us:Q262688>

This situation occurs when Windows discovers additional adapters or PCI devices that are interpreted as network adapters (infrared devices or possibly the RILOE board) after setting the initial network configuration. The introduction of a new adapter modifies the adapter instances, and the device configurations are no longer valid. When this occurs, Windows resets the adapters to the default of DHCP.

To resolve this issue, use one of the two following methods:

- Use a slipstream version of Windows 2000 that includes Service Pack 2.
- Obtain and use the NETSET utility from the Microsoft Windows 2000 Server Resource Kit. The NETSET utility reinitializes the networking components according to the settings in the UNATTEND.TXT file and restores the individualized networking parameters including static IP addresses.

Place netset.exe into the .\deploy\tools directory, then edit w2k.txt and add a line to the GUIRunOnce section:

```
[GuiRunOnce]
"c:\$oem$\ntcsp\setupc.exe /r /f /silent /use-first-csp:1989"
"c:\$oem$\netset c:\$oem$\unattend.txt"
```

Advanced Power Management Features Are Disabled After a Windows Scripted Install

The provided unattend.txt files install Terminal Services by default to allow you to access headless systems and finish configuring servers. Installing Terminal Services disables Advanced Power Management features (including Standby and Hibernate). The only power management feature available with Terminal Services enabled is the powering down of hard disks and monitors.

To resolve this issue, disable the installation of Terminal Services in the appropriate unattend.txt file.

The Web-Based Management Agents for Windows Are Not Accessible After a Windows Scripted Install

This is due to the fact that the web-based passwords have not been set.

To resolve this issue, pre-configure the passwords in the Foundation Agent Smart Component in the ProLiant Support Pack for Windows before performing a Windows scripted install. For detailed instructions on how to preconfigure the passwords, refer to the pre-deployment configuration instructions in the Rapid Deployment Pack documentation.

UnitedLinux Scripted Install Fails on Certain Older ProLiant Servers

UnitedLinux 1.0 does not install with ACPI enabled on the following servers:

- ProLiant DL320 (SCSI)
- ProLiant DL320 (ATA)
- ProLiant ML330
- ProLiant ML330 G3 (SCSI)
- ProLiant ML350 (SCSI)
- ProLiant DL740
- ProLiant DL760 G2

To resolve this issue,

1. Copy and rename the ProLiant ML/DL Scripted Install for UnitedLinux 1.0 job.
2. In the new job, edit the **Run Script—Install OS** task; add the following line before the call to ul10.bat:

```
set acpi=oldboot
```

3. Use this new job with the servers previously listed.

A Red Hat Enterprise Linux AS 2.1 Scripted Installation Halts on a ProLiant DL580 G2 Server at "Welcome to Red Hat Linux Advanced Server"

When a scripted installation of Red Hat Enterprise Linux AS 2.1 initial release (previously known as Red Hat Linux Advanced Server 2.1) is performed on a ProLiant DL580 G2 server, the installation may fail if the server configuration includes only a single processor. The failure is observed after the operating system installation is complete, the server reboots, and then halts after the "Welcome to Red Hat Linux Advanced Server" displayed text.

The Rapid Deployment Pack performs a scripted installation of Red Hat Enterprise Linux AS 2.1 the ROM operating system value to "Linux". However, because of an issue with older versions of the ROM firmware, a checksum value for the multiprocessor table is not being recalculated, which causes the operating system to hang. The OS value setting change to "Linux" fails to force the needed recalculation. Because of hyper-threading functionality in the server, the single processor system impacts the multiprocessor table.

To resolve this issue, upgrade the ProLiant DL580 G2 (P27) system ROM to version 4.03 (4 February 03) or later.

Performing a Red Hat Linux Scripted Install to a Target Server with a 4-GB Boot Drive Causes a Partitioning Error

Red Hat may default to a 1-GB swap partition during the install. This swap size is too large for a 4-GB boot drive.

The installation process displays the following error message:

```
Could not allocate requested partitions
Partitioning failed: Could not allocate partitions
Press OK to reboot your system
```

To resolve this issue, in the appropriate Kickstart file, locate the following line:

```
part swap --recommended
```

and change it to:

```
part swap --size 512
```

Red Hat Linux Scripted Install Fails with “Error Opening: kickstart file /tmp/ks.cfg: No Such File or Directory”

The installation process was unable to read the specified Kickstart file.

There are several possible causes:

- The job does not contain the correct IP address or a fully-qualified NFS hostname that can be resolved by a DNS server.
- The job does not contain the correct file name of the Kickstart file. Note that regardless of the actual name of the Kickstart file, the error is always ks.cfg.
- The first NIC, eth0, is not plugged into a network that has access to the NFS server.
- A firewall is enabled on the NFS server and is blocking access to the NFS ports.
- The NFS exports are not configured correctly. To verify, from a different Linux server, attempt to mount and view the NFS share by using the following commands:

```
mkdir /mnt/nfs
mount -t nfs hostname.domain:/usr/cpqrdrp/ss.xxx/yy /mnt/nfs
ls /mnt/nfs
```

where *hostname.domain* is the fully qualified name of the NFS server, *xxx* is the version of the support files, and *yy* is the operating system shortcut name, such as rhas21 for Red Hat Enterprise Linux AS 2.1.

- The Kickstart directory path is not in the exports file or the exports file is unreadable. Rerun the NFS server script setup-pimnfs.sh as described in the Rapid Deployment Pack documentation.

Red Hat Linux Scripted Install Fails with “The second stage of the install which you have selected does not match the boot disk which you are using. This shouldn't happen, and I'm rebooting your system now.”

The installation kernel and the `initrd.img` files found on the Deployment Server do not match the distribution files on the NFS server. These files must be of the same Linux version and update.

To resolve this issue, reinstall the ProLiant Integration Module for Deployment Server to update the kernel and `initrd.img` files on the Deployment Server. Reinstall the ProLiant Integration Module for NFS to update the distribution files.

Red Hat Linux Scripted Install Pauses at the “Choose a Language” Screen

The installation process found the Kickstart file, but failed to find the operating system distribution files at the location specified by the following line in the Kickstart file:

```
nfs --server hostname.domain --dir /usr/cpqrdp/yy
```

where *hostname.domain* is the fully qualified name of the NFS server or IP address, and *yy* is the operating system shortcut name, such as `rhass21` for Red Hat Enterprise Linux AS 2.1.

There are several possible causes:

- The distribution files do not exist on the NFS server at `/usr/cpqrdp/yy`.
- The name specified in the Kickstart file, *hostname.domain*, cannot be resolved by a DNS server.
- A firewall is enabled on the NFS server and is blocking access to the NFS ports.
- The NFS exports are not configured correctly. To verify, from a different Linux server, attempt to mount and view the NFS share by using the following commands:

```
mkdir /mnt/nfs
mount -t nfs hostname.domain:/usr/cpqrdp/yy /mnt/nfs
ls /mnt/nfs
```

where *hostname.domain* is the fully qualified name of the NFS server or IP address, and *yy* is the operating system shortcut name, such as `rhass21` for Red Hat Enterprise Linux AS 2.1.

- The distribution directory path is not in the exports file or the exports file is unreadable. Rerun the NFS server script `setup-pimnfs.sh` as described in the Rapid Deployment Pack documentation.

Performing a Linux Scripted Install to a ProLiant BL10e Server and Watching It From the Diagnostic Adapter Video Output Causes the Install to Stop or Boot Messages to Not Be Displayed

The serial port is set as the primary console on the ProLiant BL10e so that all messages are visible from the Integrated Administrator remote console.

Using the diagnostic adapter, the installation process displays the following message:

```
Uncompressing Linux... OK, booting the kernel
```

Normally the following message displays several minutes into the installation process:

```
Kickstart installation in progress.

You can view the install process by using the
Integrated Administrator Remote Console feature.
```

If this message does not display, unhook the diagnostic adapter, and then use the virtual power button in the Integrated Administrator to restart the blade. You can watch the installation process using the remote console in the Integrated Administrator and resolve the problem based on the error messages displayed.

PXE NIC May Not Be Activated at Boot After a Linux Scripted Install

If an Ethernet port other than eth0 is used or installed for PXE support, the port may not be activated at boot after a Linux scripted installation. The Linux scripted install process, by default, only activates the first Ethernet port, eth0.

To resolve this issue:

- For Red Hat Linux, perform either of the following steps:
 - Before the scripted install is performed, add a line similar to the following to the Kickstart file on the NFS server:


```
network --device ethX --bootproto dhcp
```

 where *X* represents the appropriate Ethernet port; for example, eth1 for a second NIC.

 The Kickstart files can be found on the NFS server at `/usr/cpqrdp/ss.xxx.yy`, where *xxx* is the version of the support files, and *yy* is the operating system shortcut name, such as rhas21 for Red Hat Enterprise Linux AS 2.1.
 - After the scripted install, modify the `/etc/sysconfig/network-scripts/ifcfg-ethX` file with the following, where *X* is the Ethernet port number (refer to the `ifcfg-eth0` file as an example):


```
BOOTPROTO=dhcp
ONBOOT=yes
```

IMPORTANT: Do not add this line for a specific Ethernet port if an additional NIC representing that port is not configured in the target server. The scripted install fails.

- For UnitedLinux, perform either of the following steps:
 - Before the scripted install, add a new interface section to the appropriate control file (*.xml) on the NFS server. Between the following two lines:

```
interfaces config:type="list"  
/interfaces
```

Add the following section for each NIC to be enabled at boot:

```
interface  
bootproto>dhcp</bootproto  
device>ethX</device  
startmode>onboot</startmode  
wireless>no</wireless  
/interface
```

where *X* represents the number of the Ethernet device

For further information regarding editing AutoYaST control (*.xml) files, refer to <http://www.suse.de/~nashif/autoinstall/index.html>.

- After the scripted install, check the /etc/modules.conf for an existing alias and driver entry for eth*X*, where *X* is the Ethernet device number. The entry for eth1 using the e100 driver appears as:

```
Alias eth1 e100
```

Edit the /etc/sysconfig/network/ifcfg-eth*X* file, where *X* is the Ethernet device number, setting the appropriate interface parameters. For details regarding setting parameters for ifcfg-eth*X* files, refer to /etc/sysconfig/network/ifcfg.template.

For example, refer to the following sample ifcfg-eth1 file for eth1, set for DHCP enabled on boot:

```
BOOTPROTO='dhcp'  
STARTMODE='onboot'  
WIRELESS='no'  
Device='eth1'
```

Reboot the server or execute /etc/init.d/network restart to enable the interface.

How To Use Red Hat .iso Images for Linux Scripted Installation

Instead of copying the Red Hat CD contents to the NFS directory, either during the NFS installation or manually, the .iso images can be used for Red Hat Linux scripted installs.

NOTE: Scripted installs using .iso images cannot be used with Red Hat Linux 7.2.

Place the .iso image files on the NFS server in the /usr/cpqrdp/*xx* directory, where *xx* is the operating system shortcut name, such as rhas21 for Red Hat Enterprise Linux AS 2.1. Run the Red Hat scripted install.

To access the distribution files when only the .iso images are on the NFS server, mount the .iso image:

1. Create a directory for the mount point.
2. Mount the filesystem to the mount point:

```
mount -o loop name.iso directory
```

where *name.iso* is the name of the Red Hat .iso file and *directory* is the directory created in step 1.

3. The CD files can be seen under the directory.

For example, create a directory named “files” under /usr/cpqrdp/rh80. Mount the filesystem using the command:

```
mount -o loop Red_Hat_Linux_8.0_CD1.iso /usr/cpqrdp/rh80/files
```

The files are now accessible through /usr/cpqrdp/rh80/files.

How To Add Red Hat Linux Errata Kernel Support for Scripted Installations

Red Hat provides kernel patches or fixes to resolve security issues and program errors. These patches are typically distributed as binary rpms. If Red Hat only provides a source rpm, the appropriate kernel must be built to generate the binary rpm used in the following steps.

For conditional information of errata kernels supported on specific servers, refer to the *HP ProLiant Essentials Rapid Deployment Pack Support Matrix*.

To install a Red Hat Linux errata kernel using a scripted installation:

1. On the NFS server, place the errata kernel files in the /usr/cpqrdp/ss.xxx/yy/csp directory, where xxx is the version of the support files, and yy is the operating system shortcut name, such as rhas21 for Red Hat Enterprise Linux AS 2.1.

NOTE: The errata kernel files should be binary rpm.

NOTE: To install more than one version of the kernel, add additional errata kernel files to this directory.

NOTE: Only certain errata kernels are supported by HP and the provided ProLiant Support Pack files. Verify that you are installing an errata kernel that is supported by all the drivers needed for that system.

2. On the NFS server, edit the Kickstart file that is used for the scripted installation. Kickstart files are located at `/usr/cpqrdp/ss.xxx/yy`. Make the following changes, if applicable, at the location within the POST section of the Kickstart file with the comment “# install Red Hat errata kernels here.”

- a. Uncomment the kernel rpm install command line “`rpm -Uvh /tmp/cpq/kernel-version.i686.rpm`” and replace *version* with the rpm kernel version.

NOTE: The `-U` rpm command line option upgrades the errata kernel over the base.

- b. Add a separate line for each kernel to be installed replacing the appropriate *version* name for each. Be sure the rpm files were placed in the previously-mentioned directory.
- c. Uncomment the kernel source rpm install command line “`rpm -Fvh /tmp/cpq/kernel-source-version.i386.rpm`” and replace *version* with the rpm kernel version.
- d. Uncomment the kernel headers rpm install command line “`rpm -Fvh /tmp/cpq/kernel-headers-version.i386.rpm`” and replace *version* with the rpm kernel version.
- e. Verify if .i686 or .i386 rpms and edit to match rpm names.

For example, to install the Red Hat Enterprise Linux AS 2.1 SMP kernel, the rpm install command lines would look like:

```
rpm -Uvh /tmp/cpq/kernel-smp-2.4.9-e.12.i686.rpm
rpm -Fvh /tmp/cpq/kernel-source-2.4.9-e.12.i386.rpm
rpm -Fvh /tmp/cpq/kernel-headers-2.4.9-e.12.i386.rpm
```

IMPORTANT: Do not add kernel install command lines elsewhere within the Kickstart file or the appropriate storage drivers may not install for that kernel.

IMPORTANT: If an errata kernel is installed on a managed server after the installation, the ProLiant Support Pack files should be updated. This should include rebuilding the NIC drivers, because connectivity between the Altiris eXpress console and target server could be lost.

How To Keep Multiple Copies of Red Hat Enterprise Linux Updates in Rapid Deployment Pack

Red Hat provides updates that have the latest errata kernel, hardware support, and package updates. These updates are provided as CD-ROM .iso images that can be easily used with Rapid Deployment Pack. During the Rapid Deployment Pack installation or upgrade process, you may select one of the currently supported updates of Red Hat Enterprise Linux 2.1 for server deployment. The information in these sections explains how to add another Red Hat update to Rapid Deployment and keep the existing update that was installed as part of the Rapid Deployment Pack installation or upgrade.

For additional information on supported updates, refer to the *HP ProLiant Essentials Rapid Deployment Pack Support Matrix*.

To keep multiple copies of Red Hat Linux Updates, add the Linux boot files onto the Deployment Server:

1. On the Deployment Server, create a new directory under `.\\deploy\\cds\\compaq\\ss.xxx`, where `xxx` is the version of the support files. Use a directory name that distinguishes this Linux distribution.

NOTE: Use the same Linux distribution directory name for the directories added on both the Deployment Server and the Linux NFS server. For example, use `rhas21u2` for Red Hat Enterprise Linux AS 2.1 Update 2. Use 8.3 DOS compliant names.

2. Copy the following files into this new distribution directory from the Red Hat Linux CD #1:
 - `loadlin` (from `D:/dosutils` to `.\\deploy\\compaq\\ss.xxx\\yy\\dosutils`)
 - `vmlinuz` (from `D:/images/pxeboot` to `.\\deploy\\compaq\\ss.xxx\\yy\\dosutils\\autoboot`)
 - `initrd-everything.img` (from `D:/images/pxeboot` to `.\\deploy\\compaq\\ss.xxx\\yy\\dosutils\\autoboot`.)where `D:` is the drive letter of your CD-ROM drive, `xxx` is the support software version, and `yy` is the newly created distribution directory.

IMPORTANT: Rename the copied `initrd-everything.img` file to `initrd.img`.

3. At the Deployment Server Console, use a similar Red Hat Enterprise Linux job folder as a base, and copy and rename it to reflect the distribution being added. This copies all jobs under that job folder for the various ProLiant BL, DL, and ML servers.
4. Within each newly created job under the job folder, edit the last **Run Script—OS Install** task by changing the `os=yy` variable, where `yy` is the distribution name, to reflect the newly created distribution directory name created on the Deployment Server.

Update the Linux NFS server for the distribution files and the ProLiant Support Pack:

1. On the NFS server, create a new directory under /usr/cpqrdp to store the Linux distribution files. Use a directory name that distinguishes this operating system.
2. Copy the operating system distribution files to this new directory using the instructions in the “Manually Installing Linux Distribution CDs” entry.
3. On the NFS server, create a new directory under /usr/cpqrdp/ss.xxx to store the ProLiant Support Pack files. Use the same directory name as used to create the Deployment Server directory.
4. Copy the contents and subdirectories of a similar Red Hat Enterprise Linux distribution to this new directory. The copy should be from /usr/cpqrdp/ss.xxx/yy, where yy is the similar Red Hat Enterprise Linux distribution.
5. Within the newly copied directory, /usr/cpqrdp/ss.xxx/yy and contents, update each Red Hat Kickstart file (ks.cfg, bl10e.ks.cfg, and so on) to point to the newly created distribution directory on the NFS server.

One instance is to replace the yy distribution name for the following line to use the Linux distribution files:

```
nfs --server x.x.x.x --dir /usr/cpqrdp/yy
```

Another instance is to replace the yy distribution name for the following line to copy over the ProLiant Support Pack files during the installation:

```
mount -t nfs...
```

There is a third instance of the distribution name within each Kickstart file for the creation of the installation script, /tmp/cpq/yy.sh. This name within the Kickstart file should match the script file found in the newly created directory, /usr/cpqrdp/ss.xxx/yy/csp. Either keep the current name or rename the file and its reference in the Kickstart files to match the Linux distribution version you are adding.

6. Update the NFS exports file, /etc/exports, with the two newly added directories on the Linux NFS server. Add the entries:

```
/usr/cpqrdp/ss.xxx/yy *(ro,async)
/usr/cpqrdp/yy *(ro,async)
```

where xxx is the support pack version and yy is the distribution name.

7. Run `exportfs -r` to update the NFS service with the export additions.

How To Install a Graphical Environment During a Red Hat Linux Scripted Install

To install GNOME or KDE, locate the appropriate line of text in the Kickstart file:

```
#@ GNOME
```

or

```
#@ KDE
```

Remove the # (comment symbol) from the beginning of the line.

How To Create a Job that Performs a Windows Scripted Install Using a Localized Version of Windows

To create a job that performs a Windows scripted install using a localized version of Windows.

1. Create a new subdirectory in the `.\\deploy\\cds\\windows` directory on the Deployment Server for the distribution files. For example, `.\\deploy\\cds\\windows\\w2k-xx`, where `xx` is a language code like "DE".
2. Copy the `\\i386` directory from the CD into the new subdirectory. Following the above example, you now have `.\\deploy\\cds\\windows\\w2k-xx\\i386`.
3. In the `.\\deploy\\configs` directory, copy and rename the default `unattend.txt` file, `w2k.txt`. For example, `w2k-xx.txt`, where `xx` is a language code like "DE".
4. In a text editor, open the new `unattend.txt` file. In the `MassStorageDrivers` section, replace the last four lines ending in `=RETAIL`, with the appropriate lines from the SCSI section in the `txtsetup.sif` file in the `\\i386` directory from the CD. For example:

```
Windows CD (German)    \\i386\\txtsetup.sif
```

```
SCSI
atapi      = "IDE CD-ROM (ATAPI 1.2)/PCI IDE-Controller"
sym_hi     = "Symbios Logic C896 PCI SCSI-Hostadapter"
symc810    = "Symbios Logic C8100 PCI SCSI-Hostadapter"
symc8xx    = "Symbios Logic C8xx PCI SCSI-Hostadapter"
new unattend.txt file  .\\Deploy\\w2k-de.txt
```

```
MassStorageDrivers (leave all of the lines that end in "=OEM")
"IDE CD-ROM (ATAPI 1.2)/PCI IDE-Controller"=RETAIL
"Symbios Logic C896 PCI SCSI-Hostadapter"=RETAIL
"Symbios Logic C8100 PCI SCSI-Hostadapter"=RETAIL
"Symbios Logic C8xx PCI SCSI-Hostadapter"=RETAIL
```

5. Copy and rename one of the Windows scripted install jobs in the Deployment Server Console. For example, "ProLiant ML/DL Scripted Install for Microsoft Windows 2000 German".
6. Edit the next-to-the-last task (the first **Run Script—Install OS task**).
 - a. Before the last line of text in the script, add the following text:


```
set ssos=XXXX
```

 where `XXXX` is the current value of the `os=` variable.
 - b. Change the `os=` variable to the name of the new subdirectory created in step 1.
 - c. Change the `unattendfile=` variable to the name of the file created in step 3.
7. Drag and drop the new job onto the target server, or drag and drop several target servers onto the new job.

How To Change the Size of the Windows Partition During a Windows Scripted Install

By default, the provided jobs, scripts, and configuration files for a Windows scripted install, create a Windows partition that uses the entire drive. To change this behavior, modify the ExtendOemPartition value in the appropriate unattend.txt file.

Table A-2: ExtendOemPartition Values

Value	Description
0	Do not extend. Not recommended.
1	Extend to the end of the disk. The default value.
X	Where X is the partition size in megabytes.

How to Disable the Configure Your Server Wizard During a Windows 2000 Scripted Install

To disable the Configure Your Server wizard:

1. On the Deployment Server, browse to the i386 folder. By default, this directory is `.\program files\altiris\express\deployment server\deploy\cds\Windows\w2k\i386`.
2. Using any text editor, open the file `hivedef.inf`.
3. Locate the following line (note that this is one line):
`HKCU, "Software\Microsoft\Windows NT\CurrentVersion\Setup\Welcome", "srvwiz" 0x00010003,1`
4. Change the value at the end of the line from **1** to **0**.
5. Save and close the file.

How To Create a Job to Distribute a Microsoft Service Pack

To create a job that distributes a Microsoft Service Pack:

1. Create a directory on the Deployment Server for the Service Pack file. For example, `.\deploy\cds\windows\w2k_spx`, where *x* represents the Service Pack number.
2. Download the Service Pack into the new directory.

3. Create a new job in the Deployment Server Console. For example, “Distribute Windows 2000 Service Pack 2.”

- a. Add a **Distribute Software** task with the following options.

Field	Value
Name	Service pack file downloaded in step 2
Additional command-line switches	-q -n -z

- b. Add a **Power Control** task with the following options.

Field	Value
Restart	Selected
Force applications to close without a message	Selected

4. Drag and drop the new job onto the target server or drag and drop several target servers onto the new job.

How To Create a Job to Distribute Microsoft Hotfixes or Security Patches

To create a job that distributes Microsoft Hotfixes or Security Patches:

1. Create a directory on the Deployment Server for the hotfixes. For example, .\deploy\cds\windows\hotfixes.
2. Download the hotfixes and patches into the new directory.
3. Create a file named install.cmd in the new directory with the following contents:

```
@echo off
Q123456_w2k_sp2_x86.exe -z -m -n -q
Q456789_w2k_sp2_x86.exe -z -m -n -q
qchain.exe
```

NOTE: The actual .exe filenames are based on the hotfixes that you plan on installing.

4. Create a new job in the Deployment Server Console. For example, “Distribute Windows 2000 Hotfixes.”

- a. Add a **Distribute Software** with the following options:

Field	Value
Name	install.cmd file, created in step 3.
Copy all directory files	Selected

- b. Add a **Power Control** task with the following options.

Field	Value
Restart	Selected
Force applications to close without a message	Selected

5. Drag and drop the new job onto the target server, or drag and drop several target servers onto the new job.

How To Create a Job That Connects a Server to an HP StorageWorks Storage Area Network

The following directions guide you through creating a job in the Deployment Server Console. This job can connect a server with a Fibre Channel Host Bus Adapter (FC HBA) to your StorageWorks Storage Area Network (SAN). These procedures are designed for HP StorageWorks SAN products, but can be generalized to handle third-party HBA drivers and path management software.

For details about SAN configurations, refer to the *HP Heterogeneous Open SAN Design Reference Guide* found at <http://www.compaq.com/products/storageworks/san/documentation.html>

NOTE: These procedures assume that the target server has been successfully deployed with an operating system.

In general, the directions cover the following steps:

1. Obtaining the FC HBA driver and associated Smart Components
2. Optionally, obtaining the HP StorageWorks Secure Path software
3. Creating a job to install and configure the components, then reboot the server
4. Executing the job
5. Using the appropriate SAN management software to create and present logical units (LUNs) to the target server
6. Rescanning, partitioning, and formatting the storage as needed

Instructions for Windows

1. Obtain the appropriate FC HBA driver and Fibre Channel Utility Smart Components, and copy them to the Deployment Server.

IMPORTANT: Review the documentation associated with the FC HBA and RAID Array to be sure that you have the correct FC HBA driver version for your switch and storage controller configuration. For component compatibility information, refer to the *HP Heterogeneous Open SAN Design Reference Guide* found at [http:// www.compaq.com/products/storageworks/san/documentation.html](http://www.compaq.com/products/storageworks/san/documentation.html).

- a. The HP FC HBA drivers can be found in the \rdp directory on the storage solution software CD that shipped with your HP StorageWorks RAID Array.
2. Create a directory on the Deployment Server for the Smart Components. HP recommends naming the directory to represent the driver family and version. For example, .\deploy\cds\compaq\san\type.xxx, where *type* represents the family name of the driver (QLA or KGPSA), and *xxx* represents the version of the driver.
 3. Copy the FC HBA driver Smart Component to this directory.
 4. Copy the Fibre Channel Utility Smart Component to this directory.
 5. Copy any additional software as instructed by the documentation in the \rdp directory on the storage solution software CD.
 6. If you plan to use HP StorageWorks Secure Path for Windows 4.00 or later, copy it to the Deployment Server and modify it to install silently.

IMPORTANT: Review the HP Storage Works Secure Path for Windows documentation to be sure that you have the correct Secure Path version for your FC HBA, RAID Array, switch, and storage controller configuration. For component compatibility information, refer to the *HP SAN Design Reference Guide*.

- a. Create a directory on the Deployment Server for the Secure Path files. For example, .\deploy\cds\compaq\san\sp.xxx, where *xxx* represents the version of Secure Path.
- b. Copy the contents of the \spinstall directory from the Secure Path CD to the new directory.

7. Modify Secure Path to run silently without a forced reboot. Change the last two lines of the setup.iss file located in the above directory, from:

```
Result=6
BootOption=3
```

to:

```
Result=1
BootOption=0
```

IMPORTANT: There is currently no mechanism to script the configuration of the **Password** and **Client List** options. Manually run the HP Storage Works Secure Path Configuration Utility on the target server to set these options.

8. In the Deployment Server Console, create a new job. HP recommends descriptively naming the job to reflect the components and version of what is installed. For example, QLA *x.xx* and Secure Path *x.xx* to HSG 80 Connectivity, where *x.xx* represents the version of the component.

NOTE: Job names are limited to 64 characters.

- a. Add a **Copy File** task to copy the Smart Components to the target server with the following options.

Field	Value
Copy all directory files	Selected
Source path	Directory created in step 1.b.
Copy subdirectories	Unselected
Destination path	A temporary directory on the target server. For example, C:\Temp

9. Add a **Run Script** task to install the FC HBA driver Smart Component with the following options.

Field	Value
Run this script	<pre>REM Install Smart Component C:\temp\cpXXXXXX.exe /f /silent if errorlevel==3 set errorlevel=0 if errorlevel==2 set errorlevel=0 if errorlevel==1 set errorlevel=0 if errorlevel==0 set errorlevel=1</pre> <p>where <i>cpXXXXXX.exe</i> represents your specific Smart Component file name</p>
In which OS would you like to run this script?	Windows

10. Add a **Run Script** task to install the Fibre Channel Utility Smart Component with the following options.

Field	Value
Run this script	<pre>REM Install Smart Component C:\temp\cpXXXXXX.exe /f /silent if errorlevel==3 set errorlevel=0 if errorlevel==2 set errorlevel=0 if errorlevel==1 set errorlevel=0 if errorlevel==0 set errorlevel=1</pre> <p>where <i>cpXXXXXX.exe</i> represents your specific Smart Component file name</p>
In which OS would you like to run this script?	Windows

11. Optionally, add a **Run Script** task to configure the FC HBA driver if the default configuration is not valid for your infrastructure. For example, if you want to set the driver to transparent mode. For details about the available options and command-line usage, refer to the documentation on your storage solution software CD. For example, to set the FC HBA driver to transparent mode (from the default multibus mode):

Field	Value
Run this script	<pre>REM Configure HBA Driver for Transparent Mode C:\storageworks\fcutil\win2k\fcutil.exe T</pre>
In which OS would you like to run this script?	Windows

12. Optionally, add a **Distribute Software** task to copy and install Secure Path.

Field	Value
Name	<p>The appropriate Secure Path setup program. For example, <code>.deploy\cds\compaq\sp.xxx\setup.exe</code></p> <p>where <i>xxx</i> represents the version of Secure Path</p>
Copy all directory files	Selected
Copy subdirectories	Unselected
Additional command-line switches	<code>/s /f2c:\spinstalllog.txt</code>

IMPORTANT: There is currently no mechanism available to script the configuration of the **Password** and **Client List** options. Manually run the HP Storage Works Secure Path Configuration Utility on the target server to set these options.

13. Add a **Power Control** task with the following options. This reboot is necessary to complete the installation of the software, and also causes the FC HBA driver to log in to the SAN, making its Worldwide IDs (WWIDs) visible to the storage arrays.

Field	Value
Restart	Selected
Force applications to close without a message	Selected

14. Drag and drop the new job onto the target server, then wait for the job to complete.
15. Use the SAN management software for your type of RAID array to create LUNs and present them to the target server according to the recommended instructions and practices.
16. On the target server, use the Disk Administrator utility to rescan for the new disks, partition the disks, assign drive letters to the disks, and format the disks. It might be possible to automate this step with a job using the DiskPart utility from the Microsoft Windows Resource Kit. However, be aware that, if a job is created to automate this step, in a Rip-and-Replace scenario the job re-executes and repartitions and reformat the disks unless the script defines that situation.

Instructions for Linux

1. Obtain the appropriate FC HBA driver and Fibre Channel Utility RPMs (Red Hat Package Managers), and copy them to the NFS Server.

IMPORTANT: Review the documentation associated with the FC HBA and RAID Array to be sure that you have the correct driver version for your switch and storage controller configuration. Refer to the *HP SAN Design Reference Guide* for component compatibility information.

- a. The HP FC HBA drivers can be found in the /rdp directory on the storage solution software CD that shipped with your HP Storage Works RAID Array.
2. Create a directory on the NFS server for the RPMs. HP recommends naming the directory to represent the driver family and version. For example, /usr/cpqrdp/type.xxx, where *type* represents the family name of the driver (QLA or KGPSA) and *xxx* represents the version of the driver.
 3. Add an NFS export for the directory. Add the line *directory* +(ro) to /etc/exports, where *directory* is the full path to the directory created above. Restart the NFS service using the following commands:

```
# /etc/init.d/nfs stop
# exportfs -r
# /etc/init.d/nfs start
```
 4. Copy the FC HBA driver RPM to this directory.
 5. Copy the Fibre Channel Utility RPM to this directory.
 6. Copy the install script INSTALL_FC.SH to this directory. Be sure that its execute bit is set.

7. In the Deployment Server Console, create a new job. HP recommends descriptively naming the job to reflect the components and version of what is installed. For example, QLA X.XX to HSG 80 Connectivity.

NOTE: Job names are limited to 64 characters.

- a. Add a **Run Script** task to copy and install the RPMs to the target server with the following options.

Field	Value
Run this script	<pre># Install RPMs #!/bin/sh if [! -d/mnt/rdp]; then mkdir -p/mnt/rdp fi mount -t nfs IPADDR:/DIRECTORY /mnt/rdp cd /tmp cp /mnt/rdp/*.rpm . cp /mnt/rdp/install_fc.sh . umount /mnt/rdp /tmp/install_fc.sh</pre> <p>where <i>IPADDR</i> represents the IP address of your NFS server and <i>DIRECTORY</i> represents the path of the directory created in the previous step</p>
In which OS would you like to run this script?	Linux

NOTE: Do not remove the first line “# Install RPMs” because this line is used by Altiris. This line does not impact the execution of the script.

- b. Add a **Power Control** task. This reboot is necessary to complete the installation of the software and also causes the FC HBA driver to log in to the SAN, making its Worldwide IDs (WWIDs) visible to the storage arrays.

Field	Value
Restart	Selected
Force applications to close without a message	Selected

8. Drag and drop the new job onto the target server. Wait for the job to complete.
9. Use the SAN management software for your type of RAID array to create LUNs and present them to the target server according to the recommended instructions and practices.
10. On the target server, use the standard Linux commands to partition and format the new disks. It might be possible to automate this step with a job. However, be aware that if a job is created to automate this step, in a Rip-and-Replace scenario, the job re-executes and repartitions and reformats the disks unless the script defines that situation.

How To Create a Job that Distributes a ProLiant Support Pack for Windows

To create a job that distributes a ProLiant Support Pack for Windows:

1. Create a directory on the Deployment Server for the ProLiant Support Pack files. For example, `.\deploy\cds\compaq\psp_w2k.630`.
2. Download the ProLiant Support Pack into the new directory.
3. Create a new job in the Deployment Server Console. For example, “Distribute ProLiant Support Pack 6.30 for Windows.”
 - a. Add a **Distribute Software** task with the following options.

Field	Value
Name	setupc.exe in the directory created in step 1
Copy all directory files	Selected
Additional command-line parameters	/f /silent /use-latest

4. Add a **Power Control** task with the following options.

Field	Value
Restart	Selected
Force applications to close without a message	Selected

5. Drag and drop the new job onto the target server, or drag and drop several target servers onto the new job.

How To Integrate a UnitedLinux Service Pack into the UnitedLinux Scripted Install

Service packs for UnitedLinux can be integrated into the base UnitedLinux distribution files on the NFS server for use during scripted deployments. The following steps allow any scripted deployment job for UnitedLinux to automatically integrate a particular service pack or packs.

1. Install the ProLiant Integration Module for NFS server and standard UnitedLinux base distribution to the NFS server. For details, refer to the Rapid Deployment Pack installation instructions.
2. Verify that the installed support pack version supports the UnitedLinux service pack to be installed. For information, refer to the *HP ProLiant Essentials Rapid Deployment Pack Support Matrix*.
3. Locate the service pack file set either on a CD, or downloaded to a directory on the NFS server. If a CD is used, mount the CD-ROM drive with the following commands:

```
mount /mnt/cdrom (Red Hat Linux)
or
mount /media/cdrom (UnitedLinux)
```

4. Locate the service pack integration script, `installsp.sh`, on the NFS server in `/usr/cpqrdp/ss.xxx/ul10/extras`, where `xxx` is the version of the support files.
5. Run the `installsp.sh` script with the following command:

```
./installsp.sh spnumber sppath
```

where *spnumber* is the service pack number, and *sppath* is the path to the service pack file set. For example, for a Red Hat NFS server with Service Pack 1 mounted on CD-ROM, the command would be:

```
./installsp.sh 1 /mnt/cdrom
```

NOTE: Service packs must be installed sequentially, beginning with number one. Subsequent service packs require the previous service pack to be installed first.

How To Create a Job to Configure NIC Teaming on Windows Servers

The CQNICCMD utility is installed with the Network and Teaming Configuration Utility as part of the ProLiant Support Pack for Windows. It allows you to script NIC teaming commands. This is very important when imaging a server to avoid possible issues when deploying the image.

IMPORTANT: Creating, modifying, or dissolving network teams causes the network connection to be reset. When the network connection is restored, the Deployment Agent reconnects to the Deployment Server, but does not remember its location in the current task. Therefore, the task never shows as complete. If you are running a task to create, modify, or dissolve NIC teams before other tasks, you should run the task as a separate job and be sure it completes fully before executing the next task.

To create a job that saves and dissolves a NIC teaming configuration:

1. Create a new job in the Deployment Server Console named “Save and Dissolve NIC Teams.”
 - a. Add a **Run Script** task with the following options.

Field	Value
Run this script	REM Save and Dissolve NIC Teams Cpqniccmd /s c:\nicteams.xml Cpqniccmd /d
In which OS would you like to run this script?	Windows

To create a job that creates a NIC teaming configuration:

1. Create a new job in the Deployment Server Console named “Create NIC Teams.”
 - a. Add a **Run Script** task with the following options.

Field	Value
Run this script	REM Create NIC Teams Cpqn timer /c c:\nicteams.xml
In which OS would you like to run this script?	Windows

How To Create a Job to Distribute a Smart Component for Windows

For Smart Components released with and prior to the ProLiant Support Pack for Windows 6.30:

1. Create a directory on the Deployment Server for the Smart Component. For example, .\deploy\cds\compaq\rom-bl10e.
2. Download the Smart Component into the new directory.
3. Create a file named install.cmd in the new directory with the following contents:

```
@echo off
cp000000.exe /f /silent
if errorlevel==3 goto success
if errorlevel==2 goto success
if errorlevel==1 goto success
if errorlevel==0 goto failure
:failure
set errorlevel=1
goto end
:success
set errorlevel=0
goto end
:end
```

NOTE: The actual .exe filename is based on the Smart Component that you plan on executing.

4. Create a new job in the Deployment Server Console. For example, “Online ROM Flash Component for Windows—HP ProLiant BL10e (I03) 02/15/2003.”
 - a. Add a **Distribute Software** task with the following options.

Field	Value
Name	install.cmd file, created in step 3.
Copy all directory files	Selected

5. Add a **Power Control** task with the following options.

Field	Value
Restart	Selected
Force applications to close without a message	Selected

6. Drag and drop the new job onto the target server or drag and drop several target servers onto the new job.

For Smart Components released with and after the ProLiant Support Pack for Windows 6.40:

1. Download the Smart Component into a directory in the Deployment Server eXpress share. For example, `.\\deploy\\cds\\compaq\\components`.
2. Create a new job in the Deployment Server Console. For example, “Online ROM Flash Component for Windows—HP ProLiant BL10e (I03) 02/15/2003.”
 - a. Add a **Distribute Software** task with the following options.

Field	Value
Name	Smart Component file downloaded in step 1.
Additional command-line switches	<code>/f /silent /dosretcode</code>

NOTE: The actual .exe filename is based on the Smart Component to be executed.

3. Add a **Power Control** task with the following options.

Field	Value
Restart	Selected
Force applications to close without a message	Selected

4. Drag and drop the new job onto the target server or drag and drop several target servers onto the new job.

How To Send Clustering Information to Insight Manager 7

Scripted installs of the HP Management agents cannot activate the clustering information agent because clustering is not installed at the time the agents are installed. To allow Insight Manager 7 to collect cluster information, activate the clustering information agent in the Management Agents control panel:

1. Click **Start>Programs>Control Panel**.
2. Double-click **HP Management Agents**.
3. Select **Clustering Information**, and click **Add**.
4. Click **OK** to close the window, then click **OK**.

Jobs—Imaging

The following section includes topics related to imaging jobs.

Must the Reference and Target Servers be Identical with Imaging?

HP strongly recommends that the reference server and the target server have identical hardware configurations, with the exception of the drive sizes.

Why Does Capturing an Image Cause the “Configuring Computer” Screen to Display when the Server Reloads Windows?

When a Capture Disk Image task runs, Altiris performs some pre-imaging preparation of Windows before it reboots to DOS to run the imaging tool. This preparation includes turning off networking and making the server configuration more “generic,” so when the image is deployed, it is easily customized for the target server. When the Deployment Agent shuts down a Windows system for imaging, it performs these pre-imaging tasks and saves the original settings to a configuration file. After imaging is complete and the Windows operating system reloads, the Deployment Agent reapplies the original configuration to the server. This process is occurring when the **Configuring Computer** screen displays. After the configuration is reapplied, Windows must reboot to accept the changes. After the reboot is complete, the server is available for use.

Does Altiris Imaging Support Microsoft Windows 2000 Dynamic Disks?

No, Microsoft Windows 2000 Dynamic Disks are not currently supported by the Altiris imaging tool.

What Applications Can Be Included in an Image?

HP recommends considering imaging applications individually to determine the suitability of imaging for application deployment. HP also recommends using the Altiris Rapid Install Package (RIP) method, which is a snapshot-based application imaging technology.

Create the image, deploy it on one or more test machines, and verify that the application still functions as desired. After it is determined that the application works well with imaging, this deployment method can be used for that application in the future.

Some applications that maintain specific information about the computer on which they are running do not work well with imaging, because the application may put computer-specific information into the registry, which replicates with the image. These programs, such as Microsoft SQL Server and Exchange Server, are best installed using scripting instead of imaging.

Does the Altiris Imaging Tool Support the Compaq System Partition?

Yes, the Altiris imaging tool can recognize the Compaq System Partition on drives and allow selection of whether to redeploy that specific partition to target servers.

Imaging a Server with NIC Teaming Enabled Causes Duplicate MAC Addresses on the New Server

Using NIC Teaming on a server binds a single IP address and MAC address to multiple NICs. When an image of a server is created with Teaming enabled, this virtual MAC address is preserved. When that image is deployed to another server, the MAC address is applied with the team, and the network sees two devices with the same MAC address. This duplication causes a network failure.

To resolve this issue, dissolve any NIC teams before creating an image of a server, and then recreate the teams after imaging is complete. HP provides a scripting utility in SmartStart Scripting Toolkit 1.6 or later that allows NIC teams to be created and dissolved through scripting.

Management Agents Do Not Work on a Server Deployed Using a Server Image with Management Agents Installed

The Management Agents create a server-specific, unique registry key used to identify the server to Insight Manager 7. The key is located at: `HKEY_LOCAL_MACHINE\SOFTWARE\Compaq Insight Agent\Hostguid`. When an image of a server is created, this registry key is preserved. When that image is deployed to another server, the Management Agents use this key to communicate to Insight Manager 7. The communication fails because the server is using a duplicate key.

To resolve this issue, delete this registry key before capturing the image. When the cloned servers are booted, the agents create a new unique key.

This issue has been corrected in the Capture Hardware and Windows Image job in Rapid Deployment Pack 1.20 and later.

The Packaged Cluster Imaged Windows Deployment Job Fails During the Imaging Task

To prevent this issue, be sure that no existing configuration exists on the shared storage before beginning deployment with the Packaged Cluster Imaged Windows Deployment job.

Security

The following section includes topics related to security.

How Are Network Passwords Handled?

Several types of passwords are used during the deployment process. The following shows how each type of password is used and the security implications of each.

- **eXpress Share Password**—A password is required to access the Deployment Server eXpress share point. This password is entered into the **Boot Disk Creator** screen during configuration of boot disks or PXE images. The password is saved in encrypted form within the boot image configuration as a .pwl file. This password is then used with the BWLOGIN program to supply the user name and password to access the share. DOS networking protocols convert the encrypted form to clear text when sending data across the network. There is no way to send encrypted passwords using Microsoft LAN Manager protocols.
- **Microsoft Scripted Installation—Administrator Password**—This password is stored as clear text within the Microsoft answer file (unattend.txt or other similar file). HP recommends that you change the Administrator password immediately after the scripted installation is complete.
- **Red Hat Linux Scripted Installation—Root Password**—This password is stored as clear text in the Kickstart file. HP recommends that placing your own root password in encrypted form in the Kickstart file. For instructions, refer to the *Red Hat Linux Customization Guide* at <http://www.redhat.com/docs/manuals/linux>.
- **UnitedLinux Scripted Installation—Root Password**—This password is stored in encrypted form in the control file. HP recommends that you change the root password in the control file. Refer to the *AutoYaST2-Automatic Linux Installation and Configuration with YAST2* guide located at <http://www.suse.de/~nashif/autoinstall/8.1>.
- **RILOE and iLO Passwords**—To perform management actions using RILOE or iLO, a user name and password with the appropriate permissions are required. When Altiris scans the server for RILOE or iLO, it returns the first user name in the list (usually “Administrator”). However, it does not collect the password because the password is encrypted. When using the RILOE or iLO functions of a server, you are required to enter the password if it has not been entered and saved previously. This password is then saved in the SQL database using a standard encrypted password field. Any commands sent from the Deployment Server to RILOE or iLO are sent through HTTPS protocol, so the communication is secure and encrypted.
- **Deployment Agent Password**—To install the Altiris Deployment Agent remotely on a server, you must supply a user name and password that has appropriate permissions to log on and install a service. Also, when running scripts under Windows using the Deployment Agent, you can specify an alternate user name and password for running the script. These passwords are sent over the network using the standard Windows NTLM encryption. You can also require that all communications between the Deployment Agent and the Deployment Server be made through an encrypted connection.

- **Windows Web Agent Passwords**—These passwords are stored in encrypted form in the Foundation Agent Smart Component. By default, these passwords are not set and thus cause the Web Agent to not function. HP recommends setting the passwords before performing your first scripted install job.
- **Linux Web Agent Passwords**—These passwords are stored as clear text in each of the ProLiant Support Pack installation shell scripts on the NFS server. HP recommends changing the passwords before performing your first scripted install job.
- **Packaged Cluster Deployment Configuration File—Cluster Administrator Password**—This password is stored as clear text within the cluster configuration file (CLUSTERNAME.INI or other similar file). HP recommends that you change this Administrator password immediately after the cluster installation is complete.
- **Packaged Cluster Deployment Microsoft Scripted Installation-Administrator Password**—This password is stored as clear text within the Microsoft answer file (WNETCLUS.TXT, W2KCLUS.TXT, or other similar file). HP recommends that you change this Administrator password immediately after the scripted installation is complete.

Support

The following section includes topics related to support.

Does the Rapid Deployment Pack Support the Older ProLiant (Pre-ML/DL) Servers?

No, the provided jobs, scripts, and configuration files do not provide support for ProLiant pre-ML/DL servers. However, the SmartStart Scripting Toolkit version 1.7 and earlier does provide support for capturing and deploying the hardware configuration of these servers. Those familiar with the SmartStart Scripting Toolkit can modify the provided jobs, scripts, and configuration files to support older servers.

Does the Rapid Deployment Pack Support the ATA RAID Capabilities of the ProLiant ML330 G2 Server?

No, the provided jobs, scripts, and configuration files do not provide support for configuring the ATA RAID capability of the ProLiant ML330 G2 server. However, the SmartStart Scripting Toolkit does provide the HYPERCFG utility for configuring ATA RAID on the ProLiant ML330 G2 server. Those familiar with the SmartStart Scripting Toolkit can modify the provide jobs, scripts, and configuration files to use the HYPERCFG utility.

Does the Rapid Deployment Pack Support Novell NetWare?

No, the provided jobs, scripts, and configuration files do not provide support for NetWare. However, the SmartStart Scripting Toolkit does provide support and examples for installing NetWare. Those familiar with the SmartStart Scripting Toolkit can modify the provided jobs, scripts, and configuration files to support NetWare. Altiris does not have a Deployment Agent for NetWare, so ongoing management of servers running NetWare is not possible.

Does the Rapid Deployment Pack Support Microsoft Windows NT 4.0?

The Rapid Deployment Pack supports image capture and deployment of Microsoft Windows NT® 4.0. It does not support scripted installations. However, the SmartStart Scripting Toolkit does provide support and examples for installing Windows NT 4.0. Those familiar with the SmartStart Scripting Toolkit can modify the provided jobs, scripts, and configuration files to support Windows NT 4.0.

Does the Rapid Deployment Pack Support Other Linux Distributions?

No, however the provided jobs, scripts, and configuration files can be modified to support other Linux distributions.

Does the Rapid Deployment Pack Support Upgrading from Red Hat Advanced Server 2.1 Initial Release to Red Hat Enterprise Linux AS 2.1 Updates on a Managed Server?

No, Red Hat Network is required to update to the latest Red Hat Enterprise Linux Update release.

Rapid Deployment Pack does support new installations using Red Hat Enterprise Linux Update software. For information about using the latest Red Hat Enterprise Linux Update, refer to the Rapid Deployment Pack documentation. For information about supported software, refer to the *HP ProLiant Essentials Rapid Deployment Pack Support Matrix*.

Does the Rapid Deployment Pack Support DR DOS or DOS 6.22 as the PXE or Boot Diskette Environment?

No, DOS versions other than the Windows 9x versions may not work with the SmartStart Scripting Toolkit utilities.

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